Representational exchange and edgework: towards theorising the coping with fragmentary information

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Abstract

Introduction. People face often situations when the available information is fragmentary and epistemically and ontologically different stemming from multiple incongruous systems of knowledge. While this is obvious on the basis of the vast corpus of information behaviour research to date, relatively little attention has been conducted so far to explicate the mechanisms of how people routinely manage to use such unsatisfactory sources in their pursuits.

Method. The conceptual paper describes two theoretical concepts identified in the literature.

Results. The paper discusses the applicability of the notions of *representational exchange* and *edgework* to explain the mechanisms of how people parse together heterogeneous and fragmentary information together in a meaningful whole.

Conclusion. The theory of representational exchange explains how people are capable of translating epistemically and ontologically incongruous types of information to work in concert. Edgework describes a type of information work necessary to parse together different forms of previous knowledge and new information with the help of (meta) information and knowledge on the two and their processes of becoming.

Introduction

One of the cornerstones of information behaviour literature are studies of individuals and groups and their informational preferences. A typical question has been to ask interviewees or survey respondents, or to observe which types of information sources people use and find relevant for particular tasks and practices (Xie and Joo, 2009). Studies of information types or genres have been somewhat less common, and especially inquiries into how particular types of information inform their users (e.g., Foscarini, 2015; McKenzie, 2015). The complexity of information practices and the diversity of information sources used both suggest that the equation is not simple. A context where this has become strikingly apparent, is process and practice information and more specifically paradata, i.e. data or information on data making, processing and use (Huvila, 2022a). Such information is communicated in a wide variety of forms, levels of detail, formality, and explicitness (e.g., Davet et al., 2023; Huvila et al., 2021; Kunz, 2020). While the diversity can be explained by the diversity of tasks, practices, competences or literacies, personalities, contexts and situations, such accounts do little to clarify how particular informative things or types of information function in the different situations.

The aim of this paper is to discuss the notions of *representational exchange* and *edgework* to explain the mechanisms of how people parse together heterogeneous and fragmentary information together in a meaningful whole. Representational exchange refers to human capacity to translate between reasoning, habits, instincts and norms as forms of information i.e. for example reason on the basis of norms and instincts but also to use instincts and habits as norms or instincts as a basis for reasoning (Cushman, 2020b). Edgework, introduced as a new framing for the role of curiosity in human information-seeking, describes how knowing requires crafting '*an understanding of the relations between bits of information*' (Zurn et al., 2022, p. 260) rather than mere acquisition of new information. The notions are borrowed from recent cognitive science research in human information seeking. Rather than providing a comprehensive analysis that demonstrates empirically the applicability of the concepts, this short paper lays conceptual groundwork for future research by drawing examples from the literature to interrogate to what extent they could explain observed variety of process and practice information and its use.

Information on processes and practices

Studies of process and practice information, recently investigated especially in the context of data documentation and paradata, draw attention to the diversity of information people exploit to make sense of different types of doings (e.g., Börjesson et al., 2022; Huvila et al., 2022). Diversity of information genres, media types, sources or objects is obviously not specific to process and practice information but is documented across information behaviour research that often lays an exposé of a wide variety of information sources (Zhong and Han, 2024) and complex information practices in comparably complex information ecosystems independent of context and situation (Polkinghorne and Given, 2021). Probably underpinned by the tendency of information behaviour research to focus on user measures, including relevance and sometimes usefulness, as standards of whether a particular piece of information can be applied in a given situation, somewhat less attention has been directed to considering how and why particular pieces of information de facto make sense to their users. There are exceptions like genre research that has engaged in extensive inquiries of information types and their links to social information practices (e.g., Foscarini, 2015; McKenzie, 2015).

Besides general complexity and diversity of process and practice information, recent paradata research has pointed to how the available information on data making, processing and use varies a lot but that the variety, fragmentation and inconsistencies do not necessarily impede knowledge-making, at least entirely (Börjesson et al., 2022). That competent, information literate people might be able to operate with partial and suboptimal

information is to state the obvious but what appears to have received less attention are the mechanisms of dealing with less than adequate information sources. The question is what people does and how to conceptualise their actions in what can be described as moving between registers of different types of information and parsing the fragments of available information and previous knowledge to a practicable whole.

Representational exchange and edgework

The theory of *representational exchange* was proposed by Cushman to explain how human-beings improve reasoning by translating information from '*one psychological system and format of representation to another*' (Cushman, 2020b, p. 9). It supports flexible deploying of diverse types of information and capacities to support one another (Vélez et al., 2022). Rationalisation i.e. extracting information from non-rational systems, for example, instincts, habits and norms is a common form of representational exchange but as Cushman notes, there are also others including habitisation, offline planning, thought experiments and imaginative learning. They all build on information drawn from one system applied to another. Habitisation distills information available in policies or values to habits. Offline planning does the same based on rational training whereas thought experiments and imaginative learning are based on using intuition as a basis of rational knowledge (Cushman, 2020b). A more comprehensive discussion of the theory was published in *Behavioral and Brain Sciences*, Volume 43 in 2020 (Cushman, 2020b) together with a long list of commentaries of the original article. While Cushman's focus was on information, learning and decision-making, his critics point out that representational exchange has also a social dimension. It does not always contribute to better decisions, sometimes the opposite (Graham, 2020), and its function can be rather to facilitate information sharing or cooperation (Levy, 2020), or general sense-making and seeking of meaning in life (Cushman, 2020a). For understanding information practices, representational exchange provides a concept to explain how epistemically, ontologically and physically widely different forms of information can be useful in diverse human pursuits, and in spite of their fundamental differences and incompatibilities, how they can be used in concert to inform.

The theory of *edgework* of Zurn and colleagues (2022) that should not be confused with other concepts with the same name (e.g., Lyng, 2008) discusses how curiosity should not be framed as motivation to find information but rather as connectivity. 'As *such, curiosity might collect information, track down answers, or imagine new possibilities, but it does so by building scaffolds or weaving webs. It builds connections, finds links, and follows threads*' (Zurn et al., 2022, p. 261). In the curiosity literature, Zurn and colleagues identified two styles of edgework, termed busybody and hunter, associated with particular forms of curiosity (Zurn, 2019; Zurn et al., 2022). Busybody is according to Zurn something an information scholar would describe as an active directed information seeker whereas hunter is a browsing forager and encounterer of information (Makri and Buckley, 2020; O'Connor et al., 2003). In a broader sense, edgework is about following and weaving threads, finding and establishing links and building connections. It is likely to have a variety of forms beyond those proposed by Zurn. In the context of information practices, edgework takes a stance to information seeking and use that is not geared towards the primacy of finding new information but rather to weaving together and threading what is already known together with information that is sought and encountered. It is a form of information work required to getting informed (Dalmer and Huvila, 2020). Pursuits framable as edgework can be traced in the information and records continuum (Upward, 2000) when, information, records and documents are pluralised to be used across contexts. It can also be seen as a part of what Huvila (2022b) terms as *taking* information i.e. how information does not exist useful as such but it has to be explicitly taken to function as information for its users in the context where it is aimed to be used. In tackling with the plurality of process and practice information, the work required to parse

together and make the various forms of available information, including diverse traces and ingredients, available to function as information in a given situation. A part of edgework is to build connections between and within what is already known about particular processes or practices and what information is available but also make connections between what is known *about* the different forms of available information in relation to how they can inform about practices and processes, and how that information came into being.

Discussion and conclusions

The theory of representational exchange helps to explain why and how very different types of information can be informative to people and how they can be used in concert in spite of their incongruities. Representational exchange facilitates using information on processes and practices, including paradata, but is not specific to that particular context. At the same time, it accounts for the diversity of how the different forms of information function in situations when an individual or group is trying to make sense of a process or practice. Epistemically diverse information can be used to premise decisions and knowledge even if it does not mean that the information itself would be equivalent to each other. The theory has apparent potential to contribute to the discussion on holism of information behaviour research (Polkinghorne and Given, 2021) and how the traditional rational and objectivist system of information sources, seeking and retrieval intersect with such parallel modes of engaging with information as emotions (Nahl and Bilal, 2007), embodiment (Olsson and Hansson, 2019), sociomaterial theorising (e.g., Boell and Cecez-Kecmanovic, 2011; Huvila, 2022b), and *higher things* (Kari and Hartel, 2007; Latham et al., 2020).

The work that needs to be undertaken to make representational exchange work could be seen as a form of edgework. The precise forms of edgework depend on the available information, the effort and moves required by the representational exchange to take place. Edgework extends to cover weaving together previous knowledge, including habits, norms and instincts, and diverse forms of new information with the help of (meta) knowledge and information on information and what is already known. It is conceivable that some exchanges can be more burdensome and difficult to achieve depending on the information, situation, social and material context and individuals. Using norms to underpin reasoning might be easier in formal situations, for example, in scholarly research or professional work, than using instincts whereas in everyday life situations much of reasoning is instinctive and habitual (e.g., Loudon et al., 2016; Narayan et al., 2011; Savolainen, 2009). The exact practices of edgework are also likely to vary between contexts and situations.

Identifying representational exchange and edgework in the wild is undoubtedly possible using proven qualitative and quantitative research methods. However, as the both notions direct attention to intersections and border-crossings between different types of information and (information) practices, identifying both representational exchange and edgework requires following, as Bates suggested *the red thread of information* (Bates, 1999, p. 1048) and abandoning rigid assumptions of what counts as information and what constitutes an information practice in a specific situation. This applies both to researchers and other study participants. To this end, it might be helpful to avoid using the word *information* at the outset and ask speculatively what might be information for those in the specific situation under scrutiny.

The major practical implication of this is to direct attention to that it matters what information is preserved and available and how easily it can be exploited in different situations. Rather than consider what information is made available and preserved, it is crucial to consider its compatibility with other information to facilitate representational exchange and reduce unnecessary edgework whenever appropriate. At the same time, the effort needed for edgework might not be only detrimental as qualified, conscious edgework might also imply greater reflexivity in information use than taking the available information as granted. In this sense, nudging people to engage in

conscious edgework and reflecting upon their representational exchanges—how different registers of information are used to underpin knowledge, habits and norms—could contribute to opposing misinformation and improving critical information literacy.

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