Performing interdisciplinary knowledge: Information work in emerging interdisciplinary research

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Acknowledgements

Summary

Stakeholders external to researcher's everyday work settings promote interdisciplinary research in various rhetorical guises. Researchers are expected to engage with transformative research practices that supersede disciplinary knowledge production to a certain extent. Simultaneously, researchers are expected to strengthen interdisciplinary interactions between vital disciplines. Building on the programme of information practice research and on practice theories' focus on performativity in practices, this thesis scrutinizes the implications of unresolved contradictions and of conflicting expectations at the level of researchers' information work in everyday research.

The empirical material in the study was produced through a series of hybrid interviews conducted with 14 researchers in an interdisciplinary department in a Scandinavian country. The thesis examines these researchers' information work, that is, their finding and putting to use of literature in the process of producing manuscripts. Each researcher builds their manuscript on a unique mix of disciplinary traditions that must also be made recognizable to multiple disciplinary audiences. The study applies a twofold practice-theory perspective to the analysis, constructed in this thesis as 'practice-as-enacted' and 'practice-as-performed'. The first highlights collective understandings and ways of doing research in a practice. The second highlights the singularity of events in research practices.

The three articles of the thesis address theoretical, empirical and methodological aspects of emerging interdisciplinary research. Article 1 is a conceptual paper. It examines two selected notions of information literacy against two conceptions of interdisciplinary communication: 'weak communication' aimed at overcoming differences in disciplinary terminologies and frameworks, and a 'strong communication' of questioning fundamental assumptions. The article concludes that in analyses of information activities in settings where researchers are likely to find themselves in situations of strong communication, sensitizing concepts should privilege practices over predefined collectives such as discourse- or practice communities. As a result, the present project was adjusted to pursue this privileging.

Article 2 examines information work among PhD students engaged in citing the work of others in efforts to strengthen their arguments and convince their audiences. The article finds that the normative regulations of citing is an ongoing and open-ended process of negotiations. The students

must adjust and adapt to shifting practices and expectations in their audiences. It also finds that in the various stages of producing manuscripts, some subject positions will count, whereas others will not, forcing the students to align and realign their identifications constantly.

Article 3 examines co-production of data through my engagement with the researchers. It examines the hybrid interviews within which interviewing was combined with talk-aloud search sessions and with researchers' talk-through of their manuscripts' reference lists. The interviews bring forth researchers' negotiations of the normative elements of their information work. However, the article also finds that talk aloud search sessions induce events that – in unanticipated ways – connect the researchers discursively, materially and bodily with both current and past activities. Furthermore, the article shows that *I* become a productive part of the interdisciplinary information work that emerges through the events.

By applying both the practice-as-enacted and the practice-as-performed perspectives in a discussion of the findings of the articles, the thesis highlights different facets of performativity in research practices. By their information work, the researchers become part of practices' performativity by re-current temporary enactments of a practice of producing and communicating knowledge. The thesis demonstrates that while the researchers must handle accountabilities towards various disciplinary frameworks, the researchers lack enduring intersubjective spaces for reflecting over and for handling conflicting expectations. The thesis also shows the episodic nature of information work in emerging interdisciplinary research. Information work induces unexpected combinations of actors and resources that produce possibilities, learning and innovation born in individual research projects. These possibilities may be excluded from the process of making research shared and recognizable.

Moreover, the thesis provides methodological contributions to information practice research. The two perspectives bring into view both the singularity and the conformity of information work in emerging interdisciplinary research, as well as the tensions between them. The here-and-now performativity in the events also includes my disciplinary background as part of the mix and thus adds to the inconsistencies and conflicting expectations.

This thesis contributes new knowledge about emerging interdisciplinary research. Previous research has shown how information-related activities in such situations serve to build collaborative practices or consolidate interdisciplinary fields. The current thesis finds that

researchers – by their information work – become part of temporary and ad-hoc enactments, thus demonstrating the challenges and potentials of emerging research in a setting where the researchers lack shared practices, arrangements, and intersubjective spaces for dealing with inconsistencies and conflicting expectations.

Sammendrag

Stakeholdere som står utenfor forskerhverdagen gir ulike retoriske framstillinger av tverrfaglighet. Forskere forventes å ta del i forskningspraksiser som til dels skal kunne erstatte eller overskride disiplinær kunnskapsproduksjon. Samtidig forventes forskere å bidra til å styrke samhandling på tvers av faggrenser med utgangpunkt i vitale disipliner. Denne avhandlingen undersøker motsetninger og uavklarte forventinger slik de framtrer i forskeres informasjonsarbeid i forskerhverdagen. Denne undersøkelsen plasserer seg innenfor forskning på informasjonspraksiser og bygger på praksisteoriers vektlegging av praksisers performative trekk.

Det empiriske materialet som inngår som grunnlag for avhandlingen ble produsert gjennom en serie hybride intervjuer med 14 forskere som arbeider ved et tverrfaglig institutt ved et skandinavisk universitet. Avhandlingen undersøker disse forskernes informasjonsarbeid, det vil si deres arbeid med å finne og å ta i bruk litteratur når de utvikler og publiserer vitenskapelige tekster. Hver av forskerne bygger sitt arbeide på en unik blanding av disiplinære tradisjoner og må gjøre teksten gjenkjennelig og lesbar for faglig mangeartede leserkretser. Avhandlingen benytter et todelt praksisteoretisk pespektiv; en kombinasjon av et 'practice-as-enacted' perspektiv og et 'practice-as-performed' perspektiv. Det første perspektivet retter søkelys mot kollektive forståelser og måter å gjøre forskning på innenfor forskningspraksiser. Det andre perspektivet retter søkelys mot singulære hendelser, eller 'events', innenfor forskningspraksiser.

Avhandlingens tre artikler adresserer teoretiske, empiriske og metodologiske aspekter ved fremvoksende tverrfaglig forskning. Artikkel 1 er en konseptuell artikkel. Den undersøker to ulike begreper for informasjonskompetanse i lys av to ulike begreper for tverrfaglig kommunikasjon; en 'svak kommunikasjon' der målet er å overvinne forskjeller i faglige begreper og rammeverk og en 'sterk kommunikasjon' som springer ut av forskjeller i faglige grunnantagelser. Artikkelen konkluderer med at i analyser av informasjonsrelaterte aktiviteter som utspiller seg i situasjoner der forskere med sannsynlighet vil erfare sterk kommunikasjon, bør sensitiverende begreper gi praksiser analytisk forrang fremfor bestemte kollektive størrelser som praksis- eller diskursfellesskap. Øvrige deler av det foreliggende prosjektet tar lærdom av denne konklusjonen.

Artikkel 2 undersøker informasjonsarbeid hos ph.d.-studenter som siterer forskning for å styrke egen argumentasjon og å overbevise faglig mangeartede leserkretser. Artikkelen finner en åpen og

pågående forhandling av siteringspraksisenes normative reguleringer. I møte med skiftende leserkretser må ph.d.-studentene tilpasse seg stadig skiftende praksiser og forventninger. Artikkelen finner videre at gjennom prosessen med å utvikle arbeidene sine blir enkelte subjektposisjoner gjort gjeldene, andre ikke. Studentene må hele tiden avstemme hvordan de identifiserer seg med faglige subjektposisjoner.

Artikkel 3 undersøker samproduksjonen av data som finner sted i møtene jeg som forsker har med deltakerne i studien. Den undersøker de hybride intervjuene der samtaler ble kombinert med «snakke-seg-gjennom» litteratursøkesesjoner og gjennomganger av referanselistene i forskernes tekster. De samtalebaserte delene av intervjuene frambringer forskernes artikulering av og forhandling med informasjonsarbeidets normative trekk. Søkesesjonene derimot, induserer hendelser der forskerne på uventede måter knyttes diskursivt, materielt og kroppslig til pågående og tidligere aktiviteter, ressurser og aktører. Artikkelen viser videre at *jeg* inngår som en produktiv part i det tverrfaglige informasjonsarbeidet som vokser fram gjennom hendelsene.

Ved å anvende begge de praksisteoretiske perspektivene ('practice-as-enacted' og 'practice-as-performed') i en samlet diskusjon av artiklene, får avhandlingen fram ulike fasetter ved forskningspraksisenes performativitet. Gjennom informasjonsarbeidet blir forskerne del av performativiteten gjennom gjentagende, justerte og stadig endrede utførelser av praksiser for produksjon og kommunikasjon av kunnskap. Avhandlingen viser at forskerne blir ansvarlige for ulike faglige rammeverk og at de må håndtere konflikter mellom disse, men at de mangler et intersubjektivt rom for refleksjon over og håndtering av motstridende forventninger. Avhandlingen viser også episodiske trekk ved informasjonsarbeid innenfor framvoksende tverrfaglig forskning. Informasjonsarbeidet fremkaller unike kombinasjoner av aktører og ressurser. Innenfor forskernes individuelle forskningsprosjekter produseres dermed muligheter. Disse mulighetene kan gå tapt for felles læring og innovasjon når forskerne skal gjøre sine unike forskningsarbeider gjenkjennelig gjennom delte forskningspraksiser.

Videre gir avhandlingen et metodologisk bidrag. De to perspektivene løfter fram både delte og singulære trekk ved informasjonsarbeid i framvoksende tverrfaglig forskning, så vel som spenningen mellom disse trekkene. Et her-og-nå perspektiv på hendelsenes performative effekter løfter i tillegg fram min egen faglighet som del av den tverrfaglige kompleksiteten og som en tilleggsfaktor til motstridende forventinger.

Avhandlingen bidrar med ny kunnskap om framvoksende tverrfaglig forskning. Tidligere forskning har vist at informasjonsrelaterte aktiviteter i lignende situasjoner kan bidra til å danne felles forskningspraksiser og til å konsolidere tverrfaglige felt. Den foreliggende studien viser at forskerne – gjennom sitt informasjonsarbeid – blir del av flyktige praksisframføringer. Avhandlingen viser både utfordringer og muligheter som oppstår i framvoksende tverrfaglig forskning i situasjoner der forskere mangler delte praksiser, støttestrukturer og intersubjektive rom for håndtering av motstridende forventninger.

Table of Contents

List of articles

Article 1

Gullbekk, E. (2016). Apt information literacy? A case of interdisciplinary scholarly communication. *Journal of Documentation*, *72*(4), 716-736. DOI: **https://doi.org/10.1108/JDOC-08-2015-0101**

Article 2

Gullbekk, E. & Byström, K. (2019). Becoming a scholar by publication – PhD students citing in interdisciplinary argumentation. *Journal of Documentation*, *75*(2), 247-269. DOI: **https://doi.org/10.1108/JD-06-2018-0101**

Article 3

Gullbekk, E. (2019). What can we make of our interview data? From interdisciplinary to intra-disciplinary research. In *Proceedings of the Tenth International Conference on Conceptions of Library and Information Science, Ljubljana, Slovenia, June 16-19, 2019. Information Research, 24*(2), CoLIS paper 1934. http://informationr.net/ir/24-4/colis/colis1934.html

List of tables

1 Introduction

In this thesis, I examine researchers' information work, i.e. researchers' activities involved in locating, experiencing and putting information to use, as related to the construction and communication of knowledge in emerging interdisciplinary research. With a focus on the performative aspect of research practices in general and information practices in particular, I address complexities in information work in situations where researchers draw on more than one discipline. I am interested in how established notions of interdisciplinary research resonate with these complexities. I furthermore investigate how existing information practice approaches can help illuminate research practices in emerging interdisciplinary research.

Literature on interdisciplinary researchers, and their information work, discusses established interdisciplinary fields (e.g. Budd & Dumas, 2014; Madsen, 2012; Nolin & Åström, 2010). It addresses discipline-making within identifiable interdisciplinary domains (e.g. Nolin & Åström, 2010; Pilerot, 2015), interdisciplinary information work as based in shared domain-based practices such as in the humanities (Palmer & Neumann, 2002), or discusses cross-disciplinary collaboration around shared problems (Haythornthwaite, 2006). Less investigation is aimed at how research is conducted at the intersections of disciplinary boundaries in settings where there are few or no institutionalized and shared interdisciplinary practices and arrangements in place. Framing my study in Library and Information Science (LIS), and information practice research in particular, this thesis helps to fill this gap. It sets out to enhance our insight into the way knowledge is constructed in such settings.

In emerging interdisciplinary research, researchers deal with literature that is scattered across a landscape of disciplines, and they have few if any dedicated publication venues (Caidi, 2001). Abbot (2001, p. 134) argues that interdisciplinary activities propelled by problem-focus or topical areas, seldom remain as, or evolve into, self-reproducing communities, especially if researchers lack institutionalised external audiences. This indicates that in terms of researchers' day-to-day work, the lack of robust disciplinary communities implies many uncertainties in terms of researchers' information work. Their interdisciplinary knowledge production unfolds without the backing of stabilized social, institutional and cultural frameworks and audiences, and with scarce access to publication outlets catering for knowledge created at the boundaries of disciplines. In the current study, I examine interdisciplinary information and research practice as it emerges through

the studied researchers' individually unique situations, rather than as part of a teleological process of stabilizing a shared and agreed-upon interdisciplinary field. I will focus on researchers who work on manuscripts intended for publication, and as part of this activity need to couple a variety of disciplinary traditions and actors distinct to their individual research.

LIS researchers underscore the importance of understanding *how* knowledge is produced and communicated at the frontiers of knowledge creation (cf. Palmer, 2001). These frontiers are varied in terms of the challenges they pose to researchers. This thesis expands the existing knowledge about the variation in terms of interdisciplinary research and is as such of value to several audiences. New insights into researchers' information work in emerging interdisciplinary research can inform policy makers and research leadership across universities, departments and research centres. It can bring obstacles and possibilities to shared attention among researchers who work in similar contexts as the one examined in the current study. It can raise educators' awareness about skills, competencies and challenges that hitherto may have gone unaddressed in PhD programmes and research schools. In addition, research libraries need knowledge about the varied landscape of research practices they become part of when they design services and interact with users. Emerging interdisciplinary research is part of this landscape.

In this introduction chapter, I start by indicating contradictions that occur in an ideological-discursive context for interdisciplinary research. I then explain my understandings of the key concepts used for the study of such contradictions at the level of researchers' everyday practicing of emerging research. I present the aim and research questions of the thesis, and introduce the three articles included in the thesis and the dimensions of analysis to which they pertain.

1.1 The potential cost of unresolved dilemmas and contradictions

To an increasing degree, stakeholders associate innovation and cutting-edge knowledge with interdisciplinary research. Interdisciplinarity is frequently politically appropriated and invested with meaning that serve purposes not automatically pertinent to local research activities (Madsen, 2018; Graff, 2015). Different discourses of interdisciplinarity constitute diverging ideological styles that construct boundaries rhetorically and that "reflect political choices of representation by virtue of what is included or excluded …" (Klein, 2017, p. 2).

Scandinavian universities promote interdisciplinarity in various rhetorical guises. One common one is *interdisciplinarity by restructuring*, i.e. researchers are encouraged to engage in detaching "parts of several disciplines to form a new coherent whole" (Klein, 2017, p.7). Ideologies of interdisciplinarity often articulate this as a form of research that stands out as an alternative to a specialized disciplinary foundation of knowledge (Klein, 2017; Graff, 2016). Policy-makers, funding agencies and universities encourage researchers to look beyond disciplines and specialized fields. For instance, the Norwegian ministry of education and research (2015, p. 43) calls upon institutions to "tear down barriers and cultivate cooperation between today's disciplines" because "inter-disciplinary approaches are necessary in order to identify solutions that can address future social challenges".

An increasing share of available funding demands interdisciplinary approaches and collaborations across disciplinary and professional boundaries. In a Scandinavian setting, where this thesis is situated, universities follow suit. The University of Copenhagen portrays interdisciplinary research as an approach that "will contribute to ensuring excellent frontline research and to providing graduates with qualifications that reflect the needs of the future" (University of Copenhagen, 2019, p. 4). Stockholm University "strive to develop collaboration across departmental, faculty and scientific area boundaries" (Stockholm University, 2019, p. 4). The University of Oslo stresses interdisciplinary knowledge as a key factor in the description of their commitment to confronting grand challenges, such as climate change, poverty and inequality (University of Oslo, 2020). High expectations are placed on future researchers who are to develop the skills enabling them to tear down barriers and manage complex interdisciplinary projects.

In parallel, however, institutions endorse *interdisciplinarity by bridge building* (Klein, 2017), i.e. they ask their researchers to engage in interdisciplinary knowledge formation through interaction between members of complete and firm disciplines (cf. Klein, 2017). Policy-makers, institutions and departments expect researchers to make significant contributions within their fields, for instance "… through publication in prestigious outlets" (Leahey, 2007, p. 534). These politically set goals for tomorrow's researchers push for disciplinary strength in knowledge creation. The national qualification frameworks for PhD education programmes in Scandinavia exemplify this. Swedish PhD students are expected to demonstrate a "systematic understanding of *the research field* as well as advanced and up-to-date specialised knowledge in a limited area of this field"

(Swedish National Agency for Higher Education, 2012, p. 64, my emphasis). Furthermore, PhD students must demonstrate intellectual 'disciplinary rectitude' and be able to authoritatively communicate findings nationally and internationally (Swedish National Agency for Higher Education, 2012, p. 64). In Norway, PhD candidates "can contribute to the development of new knowledge, new theories, methods, interpretations and forms of documentation *in the field*" (Norwegian Agency for Quality Assurance in Education, 2014, no page, my emphasis). In Denmark, students "must have made a significant contribution to the development of new knowledge and understanding *in the field* of research" (Ministry of higher education and science, 2015, no page, my emphasis). Researchers and PhD students, who create and communicate knowledge, are expected to progress as members of disciplinary scholarly communities.

Interdisciplinary ideology as outlined above contains dilemmas and contradictions. It asserts the transformative power of interdisciplinarity, its otherness to disciplinary foundations of knowledge, and it indicates conflicts or discrepancies between established disciplinary research and emerging interdisciplinary research. Simultaneously, it acknowledges a dependence on collaborations based on disciplinary vitality. Yet, the existing academic system does not seem to be fully equipped to accommodate a practising of interdisciplinary research that can enable researchers to deal with such dilemmas and contradictions. Education, publication, evaluation and funding systems still privilege disciplinary work (Hamann, 2016). Disciplinary journals outnumber journals dedicated to interdisciplinary work (Müller & Kaltenbrunner, 2019). Traditionally, review processes have a disciplinary foundation which can block researchers who cross disciplinary boundaries (Graff, 2015). It is also challenging for researchers who publish interdisciplinary work to justify the choice of journals not recognized by colleagues in their home department (Kushkowski & Shrader, 2013). This indicates that stakeholders hand down the contradictions to be resolved by individual researchers.

In this thesis, I scrutinize how contradictions occur as part of the participants' engagement with research practices. I address implications of unresolved contradictions for researchers who conduct their research in a hitherto underexplored setting, namely the handling of distinct mixes of disciplinary traditions and actors in situations hallmarked by weak infrastructure and weak social, institutional and cultural framing for interdisciplinary work.

1.2 Key concepts

In the following, I delineate this thesis' understanding of the notions of 'performativity in practices', 'information', 'information work', and 'interdisciplinary'.

1.2.1 'The doubleness of the situation' and performativity in practices

In textbook descriptions, research is generally described as the systematic investigation whereby data and sources in various forms are retrieved, collected, produced, analyzed, interpreted and communicated in order to create or develop knowledge, i.e. to reach new understandings, establish facts, and reach new conclusions or new solutions (Mackenzie & Knipe, 2006, p. 2). In research processes, researchers make use of established knowledge, concepts, theories, shared tools and methods. As such, the practising of research is *recognizable* among the practitioners. Every now and then, however, irregularities occur. Unpredictable data or sources materialize, concepts need to be redefined, methods appear insufficient, or paradigms shift. Hence, in research, researchers do things differently across time and space. The practising of research is in this regard *unique*.

Empirical work that theorizes practices and practising offers different perspectives on this 'doubleness of the situation' (cf. Delmar, 2010), where common and unique actions and understandings may get off balance. In the current thesis, I distinguish between these perspectives as 'practice-as-enacted' and 'practice-as-performed'. The former perspective focuses on how people's knowing what, when and how to do finds expression through an interrelation of various practice elements such as understandings, competencies, rules, and things and their use (cf. Schatzki, 2002; Reckwitz, 2002; Shove, Pantzar & Watson, 2012). This interrelationship happens by virtue of social activity. Practices configure and re-configure in the world due to practitioners' carrying out and carrying thorough of activities, and due to mutual recognition of intelligible ways of doing things. This is performativity in practices, studied as practice-as-enacted.

In the latter practice-as-performed perspective, the focus is on relations among everything that acts – be it human or non-human agents – and on the unique events of practical work that brings these actors and relations into existence (cf. Latour, 2005, p. 153). The perspective focuses on phenomena as they emerge through intra-actions (Barad, 2007). Intra-action differs from interaction. Whereas, interaction assumes distinct actors and elements that pre-exist interactions, intra-action posit that agencies – human and non-human entangled – never precede their intra-

actions but emerge through or within them. Phenomena are performative effects of intra-actions unfolding in unique events. This constant becoming is performativity in practices studied as practice as performed.

In the current thesis, I make a proposition that it is of crucial value to consider implications of both perspectives on performativity in practices when producing insights into the construction and communication of knowledge in emerging interdisciplinary research, where the 'doubleness of the situation' is likely to be a conspicuous aspect of the research setting.

1.2.2 Information

LIS researchers construe *information* in different ways depending on the nature of different research interests. Madden (2004), for example, who has researched information behaviour and learning, provides a cognitive definition: "a stimulus which expands or amends the World View of the informed" (Madden, 2004, p. 9). Goguen (1997), who works on information system design and usability testing, based his definition of information in ethnomethodology. To him information is "an interpretation of a configuration of signs for which members of some social group are accountable" (Goguen, 1997, p. 31). These understandings of information connect information with constructions of meaning. They situate information in individual minds or in interpretive activities of groups of individuals. Conversely, structural definitions place information outside individuals' agency. Bates (2017, p. 2057) who is concerned with material storage and access to information define information as "the pattern of organization of matter and energy". Thompson (1968), in a similar manner, paid attention to ways in which information is structured and organized and theorized information in discursive terms. He argued that it is the organization that is the information. In terms of the studies included in this thesis, the first class of definitions would bring to the fore such things as how researchers interpret the appropriateness of using certain citations in the context of a particular field's prestigious journals, or how the participants identify themselves in their interlocutors in scholarly communication. The second class, on the other hand, would draw attention to the relational set-up of elements such as publications venues, indexes from which authors draw the literature they cite and disciplinary genres and discourses.

In this thesis, I take the socio-material understanding of information as found in information-practice research as a starting point. Information-practice research conflates the above structuralist and interpretivist notions. Lloyd's (2010a) and Cornelius' (1996) notions of information are

prominent examples. Lloyd develops a sociocultural view of information as embedded in practices. She elaborates on Bateson's definition of information as "any difference which makes a difference" (Bateson, 1972, p. 459, cited in Lloyd, 2010a, p. 247). In her mind, a difference can be "epistemic, social or corporeal or a combination of all three" (Lloyd, 2010a, p. 247). To make a difference, she argues, information has to produce some sort of meaning. However, for something to transpire as meaningful, it has to be intelligible to participants in a shared practice. In a similar vein, Cornelius (1996) states that there "… is no separate entity of information to discover independent of our practices. Up to the point that it is sought by a practitioner within a practice it is not information and cannot be interpreted" (Cornelius cited in Bates, 2017, p. 2054). To him information does not exist outside practice, as he defines a practice, namely a "coherent set of actions and beliefs which we conform to along with the other people in our practice" (Cornelius cited in Bates, 2017, p. 2054).

These practice-based views on information are based in social constructivist epistemology, as opposed to definitions that construe information as objective entities such as stimulus (e.g. Madden, 2004) or transmittable units. The problem with social constructivist conceptualizations of information, at least in radical versions, is that they, when put to use for analytical purposes, lock information within communities (or in the case of Cornelius, "people in our practice"). Information, they argue, is only information when made meaningful though *somebodies'* practice. Rather, my claim is that in settings where information moves about within a landscape of multiple disciplinary practices, we need a definition that can unlock information from specific bounded settings, and that takes into account the epistemic instability of information in its temporal and spatial circulation.

In order to obtain this, I apply Barad's (2007) onto-epistemology in a re-articulation of Buckland's (1991) widely cited multi-type definition. Buckland presented three forms of information. First, the definition of information-as-process refers to the communication of information and denotes any change in knowledge structures that arises from the process. Second, the definition of information-as-knowledge focuses on what is perceived through the process. Third, the definition of information-as-thing refers to informative objects such as books, articles, citations, and, if we may expand a bit, bodily movements, technologies and material setups such as bookshelves, computers and search engines. I take information-as-thing to be a real and moving matter in the

world. However, as processed towards knowledge information is changeable, disputable and negotiable, and move across the practice landscapes researchers traverse in their daily activities. Simultaneously it is a matter in possession of agential capacity alongside human practitioners. Information forms a part of shifting and developing patterns of organization and can be grasped both as a process and as knowledge in its intra-active becoming among multiple agencies. To paraphrase the title of Barad's (2007) book, in our day-to-day information work, we are meeting the informational universe halfway.

1.2.3 Information work

In this thesis, I discuss information work across various steps in scholarly knowledge creation among researchers who produce manuscripts purposed for formal publication. To accentuate the link between researchers' dealings with information, and their further construction and communication of knowledge, I adapt Palmer's (Palmer, 2001; Palmer & Cragin, 2008; Huvila et al., 2016) concept of 'information work', which includes "the labor of locating, gathering, sorting, interpreting, assimilating, producing, but also sharing and communicating information" (Palmer & Cragin, 2008, p. 172).

The term serves analytical purposes. I observe Palmer's (2001, p. 29) stressing of information work as always "a mean to an end" and that the concept takes into consideration that "handling and processing of information is part of the task structure of every kind of work" (Gersin, 1981 in Huvila et al. 2016, p. 2). In a similar vein, and in line with Byström and Hansen (2005) who view information-related activities as subtasks pertaining to the overall purposes of work-tasks, Huvila (2009) discusses information work as a secondary activity. Information work becomes an analytical framework "for explicating the generative informational mechanisms of work" (Huvila et al. 2016, p. 2). In the case of this thesis, information work forms a part of the researchers' work of producing publishable manuscripts. Furthermore, I situate information work in the two perspectives discussed above, namely practice-as-enacted and practice-as-performed. Researcher can carry out and carry through information work as recognizable among fellow researchers with whom they share practices. Information work can however also transpire as performative effects of unique events.

1.2.4 Interdisciplinary

The current thesis focuses on interdisciplinary researchers who constantly encounter, adopt, adjust and dismiss concepts, methods and theories that are developed and claimed by various stabilized epistemic communities, i.e. disciplines (cf. Klein, 1990). As such, the researchers engage in boundary-crossing interdisciplinary research. 'Interdisciplinary' is not a stabilized concept in the literature on interdisciplinary research. What interdisciplinary means and what it implies differ (Graff, 2015, p. 1). For the purpose of my analysis of the 'doubleness of the situation' of research as it unfolds in practice, I observe a divide between a position that presents interdisciplinary research as different from disciplinary research, and a position that brings disciplines to view as a driving force in interdisciplinary research.

The first position is anchored in a tradition of developing typologies. An early comprehensive typology of interdisciplinary research and teaching was published in 1972. It originated as part of a study on research and teaching practices across universities in OECD-member countries. The author of the study delivered a definition that to date remain widely cited.

> Interdisciplinary - an adjective describing the interaction among two or more different disciplines. This interaction may range from simple communication of ideas to the mutual integration of organizing concepts, methodology, procedures, epistemology, terminology, data, and organization of research and education in a fairly large field. (Heckhausen, 1972, p. 25-26)

Three interconnected features occur in this definition. First, it presupposes a particular definition of disciplines. Disciplines consists of identifiable sets of elements such as methods, concepts, epistemologies and procedures. Second, it demands some kind of interaction between disciplines. Third, it indicates integration as a key criterion for interdisciplinarity. In the typology, of which the definition forms a part, integration sets interdisciplinarity apart from other types of interaction between disciplines. At the least integrative end, we find 'disciplinary' activities. 'Pluridisciplinary' and 'multidisciplinary' interactions consist of mere juxtapositions of disciplines. At the integrative end we find 'interdisciplinary' and 'transdisciplinary' interactions. Similar other typologies describe spectrums of interdisciplinary activities in terms of degrees of integration of methods, theories, concepts or data across disciplinary boundaries, such as for instance 'encyclopedic interdisciplinarity' versus 'integrative interdisciplinarity' (Boden, 1999).

Typologies of interdisciplinarity are often hierarchical discursive constructions (Graff, 2016, p. 781) pointing towards an ideal interdisciplinary future of scholarship, and towards matured interdisciplinary fields of research. Knowledge construction that obtains a high degree of synthesis through integration between disciplines are deemed 'true' or 'full' interdisciplinarity (Klein, 2017, p. 7). The terminologies keep true to the views of the 1972 OECD report, where interdisciplinarity became a question of maturation of synthesis and integration between disciplines. In the report, Heckhausen (1972, p. 83) presents six types of interdisciplinarity that "are distinguished in ascending order of the stage of maturity". Twenty some years later Salter and Hearn (1996) pointed out that this view still stood strong in the literature, encompassing those who regard interdisciplinary research to be a "… primarily epistemological enterprise involving internal coherence, the development of new conceptual categories, methodological *unification*, and *long-term research and exploration*" (p. 9, my emphasis). Holbrook (2013) argues that in parts of the literature, integration is now close to becoming the normative model for interdisciplinary research.

In the second position, scholars withhold a priori definitions of interdisciplinary research and call for a focus on interactions within specific contexts of doing research (e.g. Lattuca, 2001; Weingart & Stehr, 2000; Graff, 2015). Some authors warn against the portrayal of disciplines as stable and closed (Weingart & Stehr, 2000; Abbot, 2001), as opposed to emerging interdisciplinary fields. Abbot (2001, p. 136-137) describes a dynamic relationship between experts within a division of labour forming an ecology of disciplines. Abbot (2001, p. 137) claims that disciplines "are perpetually being redefined, reshaped and recast by the activities of disciplines trying to take work from one another or to dominate one another" through "intellectual moves of interdisciplinary deconstruction and reconstruction". Frickel and colleagues (2017) make a similar point in their discussions about interdisciplinarity. According to them, in actuality there is an un-clear distinction between interdisciplinary and disciplinary modes of knowledge production. Both modes of knowledge construction are "dynamic knowledge forms whose boundaries and practices are continuously in flux'' (Frickel et al., 2017, p.12). Lattuca (2001) points out the situated nature of such flux. In her study on a group of faculty members doing interdisciplinary work, she demonstrates how the researchers' understandings and interpretations of information is embedded in disciplinary frameworks (Lattuca, 2001, p.1). She warns that integration-premised conceptualizations of interdisciplinarity conceal disciplines as a driving force in interdisciplinary research (Lattuca, 2001, p.4). Graff (2015, p. 236) makes a point similar to Lattuca's, when he

points out that the practising of interdisciplinary research escapes established definitions since the research varies dependent on its context.

Some studies focus on *how* researchers enact particular types of interdisciplinary research (e.g. Huutonemi et al., 2010). When interdisciplinarity is defined as the 'integration' between disciplines and their components such as theories, methods, conceptual apparatuses or even world-views, researchers study how or to what degree integration happens, or they discuss the conditions for such integration to take place or not (Budd & Dumas, 2014, Nolin & Åström, 2010). Definitions and typologies in part predefine the phenomenon under study (Lattuca, 2001; Graff, 2016). The current thesis takes as its starting point a genuine practice theory-based understanding of Lattuca's and Graff's arguments above. Research that is informed by practice theories, information practice research included, defies predefinitions in empirical research, that is, the testing or applying of categories, typologies or models defined a priori to the particular empirical field under scrutiny. Rather, conceptualizations of any phenomena, including interdisciplinary knowledge creation, are ideally based on a mutuality between theoretical and practical logic. Conceptual elaborations happen by the researchers' engagement with the state of flux of the scrutinized socio-material world. Furthermore, a focus on practices implies that knowledge is a result of co-production. In this thesis, co-production forms part of the object of study. In the current study on information work in emerging interdisciplinary research where researchers' information work includes several disciplines and unfolds in the nexus of these, *I* add to this complexity by practising research among them and raising questions grounded in LIS and information practice research. Thus, the thesis includes my own theorizing moves and methodological approaches to respond to the empirical question of how knowledge is produced in emerging interdisciplinary research.

1.3 Aim and research questions

With a particular focus on performativity in research practices, the aim of this thesis is to examine researchers' information work as related to the production and communication of knowledge in emerging interdisciplinary research. The overall question of the thesis is:

How can a focus on performativity in research practices enrich our understanding of information work in emerging interdisciplinary research?

The following research questions specify the focus of the thesis:

1. How do the researchers become part of the performativity of research practices when carrying out information work in emerging interdisciplinary research?
2. What are the implications of this performativity for the individual researcher?
3. What are the implications of this performativity for the research data we co-produce (that is, the researchers and I, the LIS researcher studying their information work)?

These questions point towards a twofold examination. First, an examination of the researchers' efforts of making their unique interdisciplinary work recognizable to various audiences. Second a methodological examination of my engagement with the researchers.

1.4 The three articles

This thesis is a compilation thesis. It consists of a series of three published journal articles and an extended essay to synthetize, and discuss the articles. In the thesis, I situate the analyses of the indicated contradictions and dilemmas of interdisciplinary and disciplinary ideals, and of the challenges of balancing the recognizable and the unique in emerging interdisciplinary research, in and across three dimensions. These dimensions are only analytically separable. The articles inform an analysis in which the dimensions intertwine.

First, Articles 2 and 3 pertain to *the dimension of the research and information practices*, which the researchers become a part of (re)producing while they conduct information work. Article 2 examines PhD students' work in selecting and including citations to strengthen the arguments they make in their manuscripts and how this information work pertains to norms and understandings that belong to different disciplinary practices and audiences. Article 3 is a methodological study that adds to the analysis of practices' complexity as related to senior researchers' emerging interdisciplinary research. The article makes visible how information work unfolds as unique events in the research processes.

Second, the research contributions of Article 2 also apply to *the dimension of researchers' agency*. In their information work, the PhD students deal with conflicting beliefs and expectations, and the article provides an analysis of the shifting and conflicting subject positions made available throughout their work of drafting, revising and finally getting their manuscript published. Article 3 adds to the analysis of researchers' agency. In the unique events of research processes, agency

emerges through an unpredictable coming together of actors and resources. The events offer a space for exploring possible ways of doing research and being an interdisciplinary researcher.

Third, articles 1 and 3 apply to *the dimension of my research* i.e. emerging interdisciplinary research as a joint relational accomplishment that includes my own practicing of research. Article 1 scrutinizes two conceptualizations of information literacy by a focus on the analytical frameworks used in the light of interdisciplinary scholarly communication. As a result the dynamic between theoretical and practical logic in information practice research is highlighted. Article 3 probes into the production of data as a joint accomplishment between the participants and me. It investigates my own practising of information research as part of the emerging interdisciplinary research studied. In context with one another, article 1 and 3 illuminate how, through my research, that is, by preparing and reworking conceptual frameworks and by engaging with the participants, my role becomes visible as a part of the emerging interdisciplinary research.

Table 1 provides a brief inventory of the articles and the dimensions to which they pertain.

Title	Research questions	Results	Dimensions
Apt information literacy? A case of inter-disciplinary scholarly com-munication.	a) In Lloyd's account of information literacy, how is social context, its stability and changeability, theorized as a function of the practice theories she applies? b) How are stability and changeability in genres accounted for in Andersen's conceptualization of information literacy? c) How can we conceptualize information literacy apt for interdisciplinary scholarly communication by combining insights from the analysis prompted by the above stated questions?	The selected composite theories of information literacy - after the social and practice turns in LIS - tend to link epistemological categories such as information, knowledge and meaning with boundary categories such as fields, domains or communities. The theories reinforce the assumption that interdisciplinary communication presupposes movement towards consensual integration of elements from the involved disciplines. However, alternative possibilities are inherent to the work examined. By giving practices ontological primacy over communities, practice theories and rhetorical genre analysis can strengthen accounts for information literacy in settings where community boundaries are open ended and where scholars lack shared rules and understandings for communication.	My research
Becoming a scholar by publication. PhD students citing in inter-disciplinary argument-ation	a) How do PhD students understand the activity of providing citations within the rhetorical situation of argumentation? b) How do PhD students who cite literature from different scholarly fields identify with various scholarly and professional subject positions? c) How are these understandings and identifications aligned when the students negotiate their writings with journals?	When PhD students deal with rhetorical situations in interdisciplinary settings, they exhibit a twofold understanding of how to cite the work of others. They apply strategies aimed at moving information across boundaries *and* strategies aimed at accommodating multiple audiences. When linking information in their arguments, i.e. citing, students have to negotiate subject positions across disciplines. These negotiations are based in several modes of identifications that needs to be aligned locally within the framework of the PhD-programme. Local alignments, however, become realigned when students publish manuscripts in journals.	Research and information practices Researchers' agency
What can we make of our interview data? From inter-disciplinary to intra-disciplinary research	a) How do data produced through materially enriched interviews accentuate the performativity of practices about which we seek knowledge? b) What can we make of the interview data in terms of articulating knowledge about interdisciplinary information practices?	In practice-based qualitative research, performativity is differently accentuated across different practice lenses. By *an element-based lens*, interviews make visible interviewees negotiations of the normative elements of researchers' information work. Through this lens, interviews are data-collecting devices that enable researchers to produce representations of performances happening outside the interview. By *a post-humanist lens*, performativity moves in with the interview. The phenomenon studied emerges within the interview event, i.e. in the discursive-material intra-activity of bodies, computers, databases, notebooks, office spaces and physical distances. Whereas element-based lenses contribute to studies of interdisciplinarity from an outside point of view, post-humanist lenses make the qualitative researcher part of interdisciplinarity in-its-making.	Research and information practices Researchers' agency My research

Table 1: The articles and the dimensions of analysis to which they pertain.

1.5 Outline of the thesis

Chapter 2 presents a literature review that describes and situates the thesis in the program of information practice research within LIS and discusses LIS-studies of interdisciplinary researchers' information work. The chapter draws out understandings of *emerging interdisciplinary research*. Chapter 3 explicates the theoretical foundation for the two-fold perspective of practice-as-enacted and practice-as-performed. Chapter 4 presents the research setting and participants, the choices I made regarding methods, and my ethical considerations. Chapter 5 summarizes the three articles and discuss the analytical strategies that progressed from one article to the next. The chapter also addresses issues of research quality as relating to each article. A discussion of the thesis' research questions follows in Chapter 6. Finally, chapter 7 explicates the empirical and methodological contributions of the thesis, considers its implications, limitations and suggestions for future research, and provides a concluding remark.

2 Literature review

Studies on researchers' information-related activities have a long history (Cronin, 2003; Palmer & Cragin, 2008), dating back at least to the 1940s (Case & Given, 2016). Studies have focused on disciplinary areas across the sciences, the social sciences and the humanities (Case & Given, 2016), but since the mid 90s and onwards, some studies focus on challenges particular to interdisciplinary research (Palmer & Fenlon, 2017). Many studies have been bibliometric or survey-based, and Palmer and Cragin (2008, p. 170) point out that LIS researchers have been slow in moving their studies into the laboratories or offices where researchers carry out their daily activities. Palmer and Fenlon (2017) argue that information practice research is particularly apt for studies on information work at these forefronts of knowledge production, highlighting information work in the socio-material contexts of disciplinary and interdisciplinary research (Palmer & Cragin, 2008).

In the current thesis, I do not apply the concept of 'information practice' to designate a sub-field within LIS. In my mind, information practice denotes a research programme that puts to analytical use a practice vocabulary referring to a social and embodied sense of knowing that is embedded in activity and matter, and in their interrelatedness and organization (cf. Cox, 2012, p. 182). Mentions of information practice occurred sporadically in the literature from the 1960s and onwards (Savolainen, 2007). In the appearance of a research programme, however, information practice research came around after the general 'practice turn' in the social sciences around the mid- and late 1990s and early 2000s (cf. Schatzki et al., 2001). Since then, information practice research within the field of LIS has grown rich both theoretically and methodologically (Pilerot et al., 2017).

The first part of the current chapter provides an overview of the development of information practice research within LIS, including a note on the programme's methodology. As related to this thesis' overall focus on performativity in practices, this part of the review observes how information practice research has situated practitioners' information-related activities in reproduction, change and disruption of practices. The second part of the review discusses studies that specifically situate information-related activities in *researchers'* practices. The chapter ends with a discussion of the different understandings of *emerging interdisciplinary research* that become apparent through the reviewed literature, and I identify a thus far little studied situation of emerging interdisciplinary research that will be addressed in the current thesis.

2.1 The programme of information practice research

2.1.1 Information practice as collective accomplishment

Pioneers in developing information practice research were Savolainen, Talja, and Lloyd (Cox, 2012, p. 177). They promoted information practice research from a social constructionist viewpoint (Tuominen et al., 2005a, p. 328). They highlighted information and information practices as both constructed by and constructive of mundane activities, in work life as well as in leisure and everyday life.

Talja (1997) criticized what she identified at the time as the dominating guideline for information research, which she labelled 'the information man theory'. This metatheory underpins a cognitively oriented research programme that installs the user as a 'non-knower'. Focus is on how information – captured as objective knowledge-structures external to the individual knower – affects and alters the state of knowledge of the receiver. Information seeking is viewed as a process that reduces uncertainties that result from gaps between an individual's subjective knowledge and the objective knowledge embedded within the information sought for or received. Talja (1997) posits that the theory removes from sight processual and interactional views on knowledge as social and cultural products. She proposes an alternative metatheory of 'knowledge formation' based in theories of discursive practices and argues that an individual's identity and position is dependent on circumstances and context. Discursive formations include actors' rights and duties, competencies and knowledge. Actors use the signs of language to make sense of their social worlds and themselves within it and "cannot freely set the terms" for their identities and interpretations (Talja, 1997, p. 5). Discourses are historic knowledge formations that shape realities, and specific discourses enable meaningful communication within specific communities. Information seeking, as framed by the metatheory of knowledge formation is not studied as the satisfaction of needs that arise from gaps between external knowledge structures and cognitive states. Rather, information needs "arise more from selected interests and cultural expertise" (Talja, 1997, p. 5).

In the Everyday Life Information Seeking (ELIS) model, Savolainen (1995, 2008) drew on Bourdieu's concept of habitus, i.e. internalized culturally and socially determined dispositions, tastes and perceptions, to explain people's choices and preferences in information seeking. In Savolainen's model, habitus informs his notion of 'way of life', which is the order of things based on the choices people make. By 'mastery of life', Savolainen then describes how people take active

care of keeping order in place. Field-specific equipment possessed by individuals in the form of material, social and cultural capital determines their information seeking strategies (Savolainen, 2005, p. 146). Referring to the ELIS-model, Talja and Hansen (2006) propose *a social* practice approach. Discussing the research areas of information sharing and collaborative information seeking, they conceptualize information seekers and users as practice participants who draw upon a shared tacit knowledge, such as task knowledge, search knowledge or domain knowledge. In their framework, information work can be viewed as deeply embedded in other social practices, reliant "upon a community of practitioners, a socio-technical infrastructure, and a common language" (Talja & Hansen, 2006, p. 128-129).

Furthermore, Talja and Hansen (2006) forward the view that information practices and communication practices hang together. The activities of searching, finding and evaluating information, cannot be separated from sharing, using or disseminating information. McKenzie (2005) forwards a similar point when she discusses the framing of questions asked in peoples' encounters with information sources, not only in searching, but also during communication. In their review of user studies from the 1950s and 1960s, Talja and Hartel (2007) pointed out that several studies coupled information seeking and use activities with activities such as reading, writing and publishing. Information practice research can envelop this "full arc of communication and information" (Talja & Hartel, 2007, no page)

Tuominen and colleagues (2005b) also situated information literacy within the programme of information practice research, giving technology further emphasis. They pointed out that social practice both structure and become structured by technologies. Technological artefacts acquire shape and meaning by dint of practices. Information literacy, they argue, "cannot be separated from the domain-specific sociotechnical practices that give rise to them", for instance as found within academic disciplines (Tuominen et al.,2005, p. 341). To their minds, information literacy is embedded in the activities carried out by members of communities who use technology as appropriate to their groups and communities.

Lloyd (2007; 2010a; 2010b; 2010c) took notice of the insight that information literacy develops specific to particular communities. In her workplace studies on emergency workers, she advanced the notion of information literacy as information practice. Embodied knowledge become crucial and Lloyd supplements textual and social information with corporeal information. Lloyd

emphasises this information modality, which she defines as "experienced through the situated and sensory body as it interacts with material objects, artefacts and other people that inhabit the same landscape" (Lloyd, 2010c, no page). As is the case in Tuominen and colleague's notion of information literacy as a sociotechnical practice, Lloyd discusses information literacy as a collective accomplishment by members of a community of practice (cf. Lave & Wenger, 1991; Wenger, 1998). She articulates how what counts as information by a focus on how information is sanctioned and valued among emergency workers, and how it is reflected upon in their activities and the material arrangements that make up these workers' information landscape.

The above researchers established information practice research as a social constructionist research programme which frames information related activities as a collaborative activity in practices that originate from interactions between people who belong to same fields, groups or communities (cf. Savolainen, 2007, p. 120). Individuals' agency transpires through participation in these collectives. The programme also brings forth technology, tools and artefacts as affording and structuring features in people's dealing with information. It expands notions of information and knowledge by including practical and embodied knowledge, such as Lloyds' corporeal information modality.

2.1.2 Change and disruption in information practices

Succeeding its first decades, information practice research has moved into a variety of topics that challenge the analysis of practices as relatively stable collective sites for human agency. Information practice research deals, for instance, with transitions between practices and communities (e.g. Nordsteien, 2017; 2018; Moring, 2011; Lloyd, 2020) and with agency in informational objects (Lloyd, 2019).

Nordsteien (2017), studies how newly educated nurses' experience and approach inconsistencies and contradictions in information sources in their workplace. She demonstrates how these nurses oppose and influence change in established information practices within their new communities. Newly educated nurses introduce new ways of identifying in integrating up-to-date evidence-based information; while their experienced colleagues share experiential information on the handling of critical situations, countering the view on practices as sustained through routine and reproduction. Nordsteien (2018) also brings a dynamic view on practice change to the information practice research when she brings the individual agency of newly educated practitioners into focus. When

these practitioners' competencies differ from established routines, they do not solely comply, but also contribute change to the established social agency within the organization.

Transition between information practices is also studied as disruption of social agency. The breakdown of routines and of recognizable and shared information practices is a topic in Lloyd's recent work in the field of forced migration (e.g. Lloyd et al. 2013; Lloyd et al. 2017; Lloyd 2020). She studies refugees' experiences from a perspective of 'information resilience' and 'fractured information landscapes' (Lloyd et al. 2017; Lloyd 2020). Newcomers to information environments, who encounter an increased information overload, experience a great deal of uncertainty. Fracturing of landscapes entail disjuncture, intensification, and liminality (a state of disconnection in between landscapes). In the resettlement process, refugees experience a fragmentation of a range of arrangements, which disrupts their access to information landscapes. In order to adapt to knowledge, competencies and content in their new environment, refugees undergo a process of reconstructing information landscapes (Lloyd, 2020, p. 9). Lloyd argues that the enabling of information resilience is one important approach to supporting transition and resettlement. Information resilience denotes an outcome of information literacy allowing newcomers to engage with information, information tools and practices in settings characterized by knowledge disruption.

Byström and Pharo (2019) take into account increased agential complexity in information artefacts. They focus on changes in the way workplace expertise develops. They grant artefacts agency alongside human agency and address the challenge of coordinating different kinds of expertise, i.e. human and algorithmic. Lloyd (2019, 2020) discusses how algorithms intermesh with the production of information landscapes. In discussing implications of algorithms for information literacy practices (Lloyd, 2019), she emphasises algorithms as black-boxed relations of various actors and actants that privilege certain values and interests in knowledge production. When working upon information landscapes, algorithms may narrow the space for human agency. Critical information literacy is still a human literacy practice, where human agents reflexively and critically must take into account that the construction of algorithms "is a practice that is nested within other practices and influenced by specific views of the world" (Lloyd, 2019, p. 1483).

2.1.3 Method in information practice research

Methodological awareness has been at the core of the information practice research programme since its beginning. Many of the studies privileged practitioners' discursive accounts (Savolainen, 2007), bringing into view the 'moral narratives' that underpin information seeking and use (Talja et al. 2005, p. 92). From the start, a pivotal aspect of researching actors in their practices has been to elicit participants' experiences and voices as related to their engagement with information and information environments. The further development of the programme, emphasizing such things as the embodied and tacit aspects of practising has enlarged the scope of such methodological considerations within the program. While information practice studies continue to rely on methods of qualitative interviewing (e.g. Veinot, 2007; Nordsteien, 2017; 2018; Schreiber, 2014), others warn that ethnographic approaches are more suitable for accessing the rich experience of being *in* practice (cf. Lloyd, 2020). Pilerot and colleagues (2017) review information practice research and reveal that the programme now is characterized by methodological pluralism, consisting of interview methods, observation studies, document studies and of various combinations of these.

2.1.4 Summing up

Information practice research continues its focus on collaborative knowledge production, complementing and expanding the programme by bringing into view change and disruption in practices, and the interplay of individual and social agency in novel ways. The post-humanist view on agency, i.e. the view that agentic capacity applies equally to humans and non-humans or matter, is challenging the programme's focus on social agency. Agency, change and disruption in practices are kept within the focus on practices as shared and recognizable among practitioners. The focus on practices is not only of a theoretical matter, but also methodological in the pursuit of capturing a collective, rather than the individual encounter with information.

2.2 Information-related activities among disciplinary and interdisciplinary researchers

The above discussion of the programme of information practice research includes studies of a variety of groups of practitioners. In the following, attention will be directed towards studies that specifically address *researchers'* information-related activities. However, information practice research specifically addressing interdisciplinary information work is scarce. In the following, I

will therefore review contributions in the field of LIS that explore various aspects of relevance to the current thesis focus, starting with research that establishes complexities involved in research that expands situations organized around a shared core. Next, I review three contributions that provide different results as to how emerging research transpires as recognizable through practices shared among the involved actors.

The notions of 'core' and 'scatter' have been fundamental to the operationalization of researchers' information work (Palmer & Fenlon, 2017). These notions refer to whether the literature that researchers use are clustered as a core within the boundaries of a single discipline, or scattered across several disciplines (Bates, 1996). Low scatter fields are fields within "which the underlying principles are well developed, the literature is well organized, and the width of the subject area is fairly well defined" (Motes, 1962, cited in Bates 1996, p. 156). Bates (1996) reviewed several studies that mapped researchers' search patterns within high-scattered fields. These studies indicate that degree of scatter impose distinct adaptions of information seeking strategies. Bates (1996) found that researchers in high-scattered fields depend on browsing, rather than direct searching, and that these researchers spend more time on each inquiry. Vakkari and Talja (2005) found that high-scatter researchers use a larger number of databases than do researchers tending to rely on literature from their main field. Talja and Maula (2003) studied differences in researchers' use of e-journals by domain-factors, that is, degree of scatter, field-size, and domain-specific relevance criteria. They included four domains: nursing science, literature, history and environmental science. They identified field differences in relevance types and in scholars' search strategies. For example, in nursing science, the systematic review is commonplace, and topical and methodological relevance is important. Databases and e-journals scaffold corresponding directed searching. Conversely, in Literature Studies, they found that e-journals were less used due to a combination of a paradigmatic relevance type and the experience that available terminology in databases are unsuitable for literary scholars' search purposes. The participants in the study connect older literature to emerging keywords, rather than connecting existing vocabulary to previous literature. Hence, browsing and chaining information was the preferred search technique.

Foster (2004) carried out a naturalistic interview study on interdisciplinary researchers' information seeking in high-scattered fields and found that linear process models of the types originating from Ellis and colleagues' (1989) research apply poorly to these researchers. He

proposed a non-linear model within which the core processes of opening, orientation and consolidation consist of a range of activities that researchers have available much like an artist's palette. These activities are iterative and context-bound, both bringing in and producing a broad range of resources, people and networks.

Tenopir and colleagues (2016) explore changes in how researchers assign authority and trustworthiness to information sources in light of new communication platforms and venues for scholarly communication, such as Open Access publishing. They found that methods used to evaluate trustworthiness and quality remain traditional: for instance, they ascertained that peer reviewed top-ranked journals within the researcher's fields remain the gold standard, and that relevance based on recognizable disciplinary and field specific content remains highly important for decisions related to reading and citing. Pontis and colleagues (2017) indicate how decisions based on field-specificity can emerge as a 'pain point' in researchers' keeping up to date with research publications. They identify five dimensions – including 'type of information source' and 'how well defined a domain or community is' – that interfere to various degrees with different stages of the process. Degree of definition of domain gains most significance in the stage of validating and interpreting information, where it interrelates with increased scattering of both formal and informal interpersonal information sources.

The above contributions establish that in research there is no one-size-fits-all approach to activities such as finding, choosing or applying literature within research work. In high-scatter research, researchers are more likely to engage and combine activities in a non-linear manner. However, activities vary according to domain-specific underlying principles that are not easily transferable across domains.

2.2.1 Interdisciplinary information work as anchored in shared research practices

As part of Palmer's (2001) large research project on information work among researchers affiliated with an interdisciplinary research centre, Palmer and Neumann (2002) studied the information work of a sample of interdisciplinary humanities scholars. Palmer and Neumann (2002) scrutinized activities and resources involved in the scholars' work across disciplinary borders. They identified shared humanities-specific work features and were able to demonstrate that interdisciplinary work was based on these features. Palmer and Neumann (2002) found that the scholars primarily absorb

information through reading and re-reading, scanning for cues, seeking understanding and reading specifically for writing. The participants then develop distinct interdisciplinary strategies for exploring and for translating information across the boundaries of fields that are cognate and potentially relevant to the hybrid domain. Palmer and Neumann (2002) found two distinct exploring strategies. First, researchers extend their intellectual sphere by scanning for information across a variety of subjects, often outside their fields of expertise. They actively seek interaction with colleagues from other intellectual communities. Second, they prime for future discovery. They learn the tools necessary to expand into new areas, they engage in eclectic reading across bodies of literature, and they anchor their reading in textbooks, handbooks and core journals in order to ensure proper understanding. Likewise, the participants engage in two distinct translation strategies. First, the scholars need to learn languages anchored in other research communities' styles of thought. Second, they contextualize ideas in the methodology, theoretical orientations and vocabulary of new audiences.

In her earlier research on interdisciplinary scientists, Palmer (2001, p. 66-68) found that 'shadow structures' – i.e. communities spanning the local site of the research centre under scrutiny and that develop around shared research interests and problems – provide important common ground for researchers who are engaged in creating hybrid domains. In the study on interdisciplinary humanities scholars, Palmer and Neumann (2002) argue that shared modes of working in the humanities, together with shared interdisciplinary experiences both from working at the research centre and from the interdisciplinary features of their research education contribute to the cooperative building of joint discourses for communication through information work.

For these researchers, interdisciplinary information work strategies transpires through a shared core of practices within the humanities.

2.2.2 Interdisciplinary information work as a discipline-making activity

Pilerot (2013; 2014; 2015; Pilerot & Limberg, 2011) studies information sharing in an interdisciplinary network of design researchers coming from various disciplines and home departments with varying research topics and academic experience. Pilerot (2015) outlines what, when, why, where and how information is shared in the network. The design researchers in the network share research documents, references to publications, images, diagrams and ted-talks. They seldom share work in progress. Their sharing intensifies in collaboration projects, and when

reviewing literature. This information sharing happens wherever they meet (offices, coffee-machines, corridors, travels etc.), and via various media (face-to-face, emails, dropbox). These activities intertwine with routine activities in research such as reading and writing.

Pilerot and Limberg (2011) demonstrates how information sharing expresses a collective understanding of how to do research. Pilerot (2013) also found trust to be a fundamental feature in how researchers in the network judge the credibility of peers and of information. Trust as related to information sharing is more than a matter of inter-personal relations. It is also a matter of conforming to the dominant shared discourse of those interacting. For instance, Pilerot finds that a sharer, and subsequently the information shared, is likely to appear trustworthy if he or she toes the line with the dominating discourse as manifested in language used (Pilerot, 2013, no page). This finding resonates with Haythornthwaite's (2006) study on information exchange and learning among members of distributed interdisciplinary teams. Haythorntwaite demonstrated the importance of information exchange to the sustaining of collaboration, not only in terms of sharing disciplinary, "factual" knowledge but also by mutual learning of the surrounding discourse, methods and processes. Another feature of the information sharing among the interdisciplinary design researchers was the coordinating role of objects across time and space (Pilerot, 2014). Epistemic objects, such as documents or file-hosting services served to coordinate information work as a shared social practice.

Pilerot (2015) describes the network of design research through Whitley's (2000) concept of fragmented adhocracy, characterized by intellectual variety and fluidity, multiple research problems and strategies, and few coordinating mechanisms such as platforms and venues for communication. He finds, however, that through information sharing the researchers develop shared community and belonging, that they stabilize a shared core of literature and discursive reference points such as concepts and theories. Pilerot's contributions show that information sharing activities do not only constitute a shared practice of design research but they also enact "the (inter-) discipline of design research" (Pilerot, 2015, no page).

Pilerot (2016) also addresses PhD students' enactment of information literacy within the network. He identifies a broad range of challenges faced by the students, such as deciding what to read and include, and how to position their research. He is able to demonstrate that the network serves to afford a collectively sustained winding up of how to practice design research.

2.2.3 Information work and communities of practice in their making

Palmer and Pilerot's contributions demonstrate how information-related activities transpire through or consolidates shared research practices, respectively. The next contributions demonstrate that practices and communities of practice can be viewed as more instantaneous in light of here-and-now convergence of various actors and perspectives.

Huvila (2014; 2019) studies information work as an infrastructure in archaeology. He brings forth information work as a process within which archaeology as a material and social practice is a matter of things-in-their-making through a mangle of practice (cf. Pickering, 1995). Huvila moves beyond the imaginary of affordances, i.e. infrastructures as artefacts that make the activities take place or not. Rather, he brings infrastructures and their users' together in a mutual becoming. His study of an archaeological teaching excavation is illustrative (Huvila 2019). In this particular study, he explores mutual becoming as a learning process that make the participants part of their archaeological community of practice through a dance of agency of parallel infrastructures. The infrastructures are the physical archaeological stratum i.e. the soil and ground excavated; the social group of students and researchers; and two documentation infrastructures, namely a paper-based documentation and a digital photo-documentation. Huvila (2019) pays attention to the frictions between the two documentation infrastructures as they are put in use at site. These infrastructures implied the practical challenges of finding a routine to avoid getting in each other's way, but more interestingly, they shifted archaeological material thinking and epistemology. Particularly the senior researchers emphasized the importance for students to learn pen and paper documentation in order for them to get the right feel for the disciplinary practice of excavation work. Hence, the legacy infrastructure was granted value beyond technology. Participants perceive it to stabilize and maintain archaeological disciplinary practices (Huvila, 2019, no page). However, frictions and tensions also make visible – both to the observing information researcher and to the observed archaeologist – the change taking place in archaeological practices.

Ebeltoft and colleagues (2018) make a similar contribution as to how communities of practice form around infrastructural aspects of research. They interviewed 15 interdisciplinary researchers about their encounters with their university library's research support services such as literature reviews, counselling on open access publishing, and book launches. Theorizing support services as boundary objects, they find that the services are co-produced through the mutual adjustment of

multiple perspectives and practices, including librarians and the library's infrastructure. They conclude that the library's organization around disciplines is a hindrance to interdisciplinary research support services.

2.3 This thesis' intended contribution

Previous research has studied scholars' information work in high-scatter domains and in emerging interdisciplinary fields. These studies have shown that in interdisciplinary research the patterns of researchers' activities – as they are identified in disciplinary domains – grow more complex, and that information work processes are non-linear, iterative and happening within broader networks of resources and actors. In continuation, these processes have been studied in practice terms, as emerging hybrid domains, the maturation of networks into fields resembling disciplines or the converging of actors in communities of practices. The research has installed emerging interdisciplinary research as translation work, anchored in shared and recognizable practices, or as teleological, evolving within mutual projects.

In addition to the views articulated in the previous research itself, emergence may also be pictured as a process characterized by undetermined and unshared outcomes. Each such *unique emergence* that brings together information, information resources, actors, discourses and objects may or may not become recognizable among collectives of actors. Information work as part of this kind of emerging interdisciplinary research has not been given much attention, partly because it does not fit the ideals of either information practices or interdisciplinary research. Thus, challenges of trying to make the unique recognizable remain understudied. The current thesis aims to add insights into emerging interdisciplinary research by focusing on how these challenges unfold, and on their implications for researchers' agency and subjectivity. The thesis aims to contribute to the continuous theoretical and methodological awareness inherent to the programme of information practice research.

3 Theoretical frameworks for performativity in practices

The current study focuses on performative aspects of information practices in complex research situations of emerging interdisciplinary research. The theoretical framework of this study is informed by practice theories. Practice theories comprise a diverse family of theories that share the idea of practices as performative, i.e. that phenomena such as information, knowledge, subjectivities or scientific knowledge claims are ongoing accomplishments happening through actions, relations and processes. However, practice theories ontologize these performative accomplishments differently. They can induce different objects of study and inform different perspectives through which researchers view and analyse phenomena. In this thesis, I apply a framework that facilitates my examination of the participants' information work in the 'doubleness of the situation' of their research characterised by being simultaneously recognizable and unique (see section 1.2.1). In the following, I explicate my twofold perspective of 'practice-as-enacted' and 'practice-a-performed'. The former is a construct that zooms in on the shared and recognizable aspects of practices and practising. This perspective is informed by 'practice theories of action' including contributions by Reckwitz, Schatzki, Shove and colleagues, Nicolini, Wenger-Trayner and Butler. The latter, practice-as-performed, is a construct that zooms in on the performative effects of unique events in practices and practising. This perspective is informed by 'relational theories of practice' such as the works of Latour, Callon, Mol, Massumi and Barad. The twofold perspective is summarized in table 2.

3.1 Practice-as-enacted

The practice-as-enacted perspective is informed by contributions found within practice theories of action. Performativity in this strand of practice theories is most explicitly articulated in the analytical distinction made between practice as entities and as performance (Schatzki, 1996; Shove et al., 2012). Reckwitz describes practices "as a pattern which can be filled out" (Reckwitz, 2002, p. 250). As such, practices can operate as templates for the carrying out of everyday tasks and projects. As enduring entities in the world, practices can be objectified and talked about. Shove and colleagues (2012) point out, however, that practices as enduring entities must be enacted in actuality by the carrying out and carrying through of everyday activities. Practitioners must enact

practices in concert. There is a continuous dynamic between practices as entities and as performance.

In practice theories of action it is change, not order, that needs explanation. They are theories of social order and change, where collective activities and routine are main concerns. Reckwitz views social order as reproduction and suggests that routinization "happen(s) in the sequence of time, in repetition" (Reckwitz, 2002, p. 255). Reproduction happens because participants know intuitively what to do next in a given situation (Schatzki, 2002). Practices are practically intelligible to the participants. Reproduction, however, entails change. Enduring templates for action can be differently enacted over time. Shove and colleagues (2012) discuss how practices change over time. They first break practices down analytically into three interrelating elements. These are 'materials' (e.g. objects, tools, bodies), 'competencies' (e.g. skills, know-how and understanding) and 'meaning' (e.g. emotions, beliefs, purpose). Practitioners re-produce and change practices by interconnecting or disrupting these elements through activity. For instance, systematic reviewing is a well-established scholarly communication practice in the health sciences. During recent years, systematic reviewing has migrated into other disciplines and changed along the way. For example, in the health sciences, researchers enact systematic reviewing as a particular interaction between its practice elements. Those engaged in the practice share the idea that systematic literature searches reveal valid and reliable knowledge within a topic (meaning element); they apply databases designed to enable the particular search methodology and have available journals that publish reviews (material elements) and they must be knowledgeable and skilled in mastering the methodology and the databases (competence element). In other scholarly fields, the elements may look different, or stem from practices that infuse elements with other meanings; literature may not be organized through databases having the same functionality as they have in the health sciences, and notions of validity in research output may be different.

Practice theories of action discuss *capable* human agents. Practising implies mastery of given situations, "the capacity to carry out a social and material activity" (Nicolini, 2012, p. 5). To become part of a practice is therefore also a process of learning and of socialization. A practitioner must come to know how to do and how to say, but also what to expect and even how to feel (Nicolini, 2012) or how to recognize emotions (Weenik & Spaargarten, 2016). To practise theories of action mastery implies shared knowledge and mutual recognition of skills, know-how and

techniques. What practitioners must master is a regime of competences that results from a "community's social negotiation of what constitutes competence" (Wenger-Trayner & Wenger-Trayner, 2015, p. 14).

Practices are also normative (Rouse, 2001; 2007). They encompass value judgments and indications of what it means to be knowledgeable and capable in particular situations. Templates for practice preserve the know-how, the norms, and the competencies that organize ideal practices. These templates, because they are shared and explicitly or implicitly agreed-upon, are normative in the sense that they indicate correct ways of carrying out activities within a practice. For practitioners, this implies the possibility of failing or of falling out of a practice. Rouse (2001) points out that in order to share a practice, practitioners' actions must be "appropriately regarded as answerable to norms of correct and incorrect practice" (Rouse, 2001, p. 190).

Changes in practices are the result of the emergence of new combinations of competences, materials and meanings (Shove et al., 2012), or new combinations of doings and sayings, their organizing principles – the understandings, teleologies and rules – and of the entities of material arrangements (Schatzki, 2011). However, practices are not only internally coherent. Practices also cohere in wider nexuses of practices (Schatzki, 2002; 2011) or in a landscape of practices (Wenger-Trayner & Wenger-Trayner, 2015). Wenger-Trayner and Wenger-Trayner discuss practitioners' competences in those instances where several practices intermesh, where new practices are potentially in the making, and expectations to competent practising multiply. They point out that practitioners, to develop "a meaningful identity of both competence and knowledgeability in a dynamic and varied landscape of relevant practices", need to "negotiate their role, optimize their contribution, know where relevant sources of knowledge are, and be practiced at bringing various sources of knowledge to bear on unforeseen and ambiguous situations" (Wenger-Trayner & Wenger-Trayner, 2015, p. 23-24). Herein lies an emphasis, in addition, on individuals' creativity as a prerequisite for the reproduction and change within a practice or in constellations of practices. Practitioners must adapt to new circumstances (Nicolini, 2012) and in real life, normativity becomes "indefinitely complex" (Schatzki 2002, p. 83). Disagreement over proper ends and emotions is inevitable and in dealing with such inconsistencies, practitioners shift between states of practical and of discursive consciousness. When situations so require, practitioners perform

"reflexive monitoring" (cf. Giddens, 1991) of the otherwise practical flow of being engaged in enacting practices.

The enactment of practices also has consequences for individual subjectivity. According to Nicolini (2012), the normative texture of practices indicates moral ways of being, i.e. a specification of the ethics, values and virtues particular to a practice. Within the family of practice theories, Rouse (2007, p. 500) argues, Butler's (1993; 2006) work on gender offers an elaborate contribution to the implications for subjectivity in the enactment of practices She elaborates on the insight that a discursive practice "enacts or produces that which it names" (Butler, 1993, p. xxi), and that people *cite* iterable normative structures. In Butler's mind however, people do not simply cite norms through speech acts, they embody them (Butler, 2006). Citation happens just as frequently through stylistics and bodily gestures as it does through speech acts. In citing and in reiterations of norms and conventions, people are not free to perform identities by autonomous choice. By reiterating norms and conventions, they are bound to the constraints imposed by practice, and agency is limited by cultural norms of reception. Alluding to Wenger-Trayner and Wenger-Trayner (2015), people only have limited control over the audiences presented to them in the vast landscape of practices they traverse. So when Butler speak of power as subjection to discourses, i.e. a "fundamental dependency on a discourse we never chose but that, paradoxically, initiates and sustains our agency" (Butler, 1997, p. 1-2), she describes practices as sites of limited and conditioned agency and as a site of contested meanings. Still, people have the capacity to re-signify (Butler, 2006). Norms are historical, but vulnerable to challenge. Their existence depends on continuous citation by subjects, and they may be altered by alternative acts.

To sum up, the practice-as-enacted perspective for the present work is conceived through the following: Templates for practising exist and can be talked about. Nevertheless, they must be instantiated by people's concerted activities. Practices both reproduce and change because practices and their elements can reconfigure in the activities. Likewise, emerging practices are reconfigurations of circulating practice elements. Practicing requires competence and knowledgeability, and practitioners are accountable to norms. A practitioner learns in interaction with practice elements and with fellow participants together with whom practices are enacted. Practices co-exist in landscapes of interrelated practices subjecting agency to various normative structures, which also entail complexities as to how people enact and express subjectivity.

3.2 Practice-as-performed

The practice-as-performed perspective is informed by contributions found within relational theories of practices that maintain focus on the performative effects of intertwined human and non-human actors.

The practice theories of action discussed above deem change and innovation, and not social order, as things that require explanation. Relational theories of practices see it the other way around. Mol (2010) argues that frameworks such as actor-network theory and material semiotics are concerned with *modes* of ordering, rather than the *order* itself. These two relational theories of practices study the makeup of the networks or associations of relations that produce phenomena (Mol, 2010). Actor-networks consist of connections among people and things. These connections form through processes of translation (Callon, 1984). Translation is the process whereby resources – such as researchers, articles, books, instruments, journals, review committees – are made similar and representable through a single actor-network (Latour, 1987).

The practice-as-performed perspective appropriates two premises that are present in the works of Callon and Latour. The first premise is that actors come together in *events* and that phenomena are performative effects of those events. Latour (1987, 1999) studied the production of scientific facts and viewed scientific experiments as events defined as historical and contingent assembling of actor-networks. Latour's (1999) famous example is that of Pasteur, who established the link between bacteria and fermentation. This was not the result of a single wilful agent. Surely, Pasteur did want to establish the link, but the bacteria actually had to first initiate the fermentation, and the institution – The Academy of Science – then had to accept the experiment and endorse the result. Latour's point is not just that these elements (Pasteur, bacteria, laboratory, academy) converge, but that they mutually transform and re-emerge in and by the event. "No event can be accounted for", Latour claims, "by a list of the elements that entered the situation before its conclusions" (Latour, 1999, p. 126).

Events can be seen as encounters that transpire through an ongoing reassembling of human and non-human actors. Massumi (2015), a social philosopher working on creative practices, theorises the contingencies of such events through an idea of the *singularity* of events. Similar to Latour, Massumi (2015) points out that events are about forming agency through relations. However, there is more to the event than the actualisation of an actor-network. The ongoing reassembling produces

possibilities and relational tendencies. The event, the here and now of assembling actors, is as much *virtual* as it is *actual*. MacLure (2013, p. 662) describes the virtual as "caught up in the forward momentum of becoming – of matters spooling out without a predetermined destination". In the momentum of becoming through events, the virtual unfolds as tendencies or potential outcomes. The potentials present themselves as a *sense* in the here-and-now (cf. Deleuze, 1988, Massumi, 2002). In the event, actors only become part of co-producing potentials through the event as relationally enmeshed with other actors entering it. Returning to the conceptual repertoire of actor-network theory, I propose that the virtual – the potentials that transpire through the event – may actualize through further processes of translation, or it may fail and never become a part of any network.

The centrality of events implies a different take on the capable actor as construed within the practice-as-enacted perspective. Instead of the event being a matter of the actors' potentiality, the competencies of an actor will only be inferred after the unfolding of the event (Latour, 1996). What is at stake for the actor in the situation is "not the agency of the subject, but the agencement of the event in its speculatively pragmatic unfolding" (Manning in Massumi, 2015, p. 157). Agencement denotes a here-and-now convergence of actors in events, and as such, in events nothing is written in advance (cf. Callon, 2009). When nothing is written in advance, subjectivities and competencies are rendered open-ended.

The second premise of the practice-as-performed perspective is that agency is not reserved for humans. Latour defines an actant as either human or non-human entity "that acts or to which activity is granted by others" (Latour, 1996, p. 373). An actant can be virtually anything, an information user or an information object, "provided it is granted to be the source of an action" (Latour, 1996, p. 373). Thus, the premise is already implicitly expounded through the discussion of the event. Latour was one of the early proponents of the post-human stance. Barad (2003; 2007) has developed this stance further with sophistication, explicitly including the performative aspect of research practices. She calls for:

> a particular posthumanist notion of performativity —one that incorporates important material
> and discursive, social and scientific, human and nonhuman, and natural and cultural factors. A
> posthumanist account calls into question the givenness of the differential categories of 'human'

and 'nonhuman,' examining the practices through which these differential boundaries are stabilized and destabilized. (Barad 2003, p. 808)

Barad explicates how actors, objects and meaning are dynamically brought into being in practice. She is critical towards Butler's (1993) emphasis on discursive and citational performativity on the expense of matter (Barad, 2003). To Barad (2003; 2007), phenomena in the world are temporary effects of what she calls 'intra-actions'. Intra-actions differ from interactions assuming distinct individual agencies. Instead, agencies emerge through intra-actions without *a priori* delimitations. Rather, she states, "it is through specific agential intra-actions that the boundaries and properties of the 'components' of phenomena become determinate and that particular embodied concepts become meaningful" (Barad, 2003, p. 815).

In terms of research practices, Barad (2007) stresses that 'the knower' is never external to the world investigated, there is no exterior observation point. Instead, the researchers always "meet the universe half-way" and the knower can only become external from within (Barad, 2007). This externality from within happens through 'agential cuts'. Agential cuts are moments when phenomena are temporarily performed as distinguishable and as intelligible. The cut effects a separation between subject and object and "enacts a local resolution within the phenomenon of the inherent ontological indeterminacy" (Barad, 2003, p. 815). As the cut constitutes the intelligible phenomena, it simultaneously entails a boundary-making performativity. In terms of method, the cut excludes things from entering the intra-action. In doing research, we are responsible not only for the knowledge we produce, but for the co-creation of realities.

To sum up, the practice-as-performed perspective for the present work is made of the following understanding: Order comes about through actor-networks that hold and consist of humans and things. The networks assemble in events that are unique moments of practicing. The events do more than actualize patterns and networks; they are spaces for the virtual and for potentials transpiring in the here-and-now. Phenomena are temporary effects of *intra-actions* that include humans and matter, objects and things in the networks. In the events, knowledge transpires through an intra-active becoming, and the knower is inseparable from the intra-activity of the events. In terms of research method, agency is determinate through agential cuts. Such cuts are ethical because they include a boundary-making performativity.

Perspective	Practice-as-enacted	Practice-as-performed
Practice theoretical support	Practice theories of action	Relational theories of practice
Contributors	Schatzki, Reckwitz, Shove et al., Rouse, Nicolini, Butler	Latour, Callon, Mol, Massumi, Barad
Ontology	Constructive performativity (configuring)	Ontological performativity (becoming)
Order / Change	Change through re-configuration Normativity	Order through translation
agency	Humanist Competent practitioners Expectations Reflexivity	Post-humanist Intra-actions Event Tendencies
Performativity	Actuality Enactment / re-enactment	Virtuality Performative effects
Emergence	Re-configurations	Contingencies

Table 2: The twofold perspective of performativity in practices.

3.3 Application of the twofold perspective

The two perspectives find support in contributions that diverge in terms of ontology. Practice theories of action assume an ontology in which elements of the social, such as human beings, materials and discourses in interaction constitute practices. Elements of practices are fairly stable in themselves, but they move in relation to each other and configure through human activity. In this sense, practices exist "beyond the lives of those who practice them" (Kemmis et al. 2012, p. 34; cf. Nicolini, 2012). Practice theories of relations take a post-humanist stance with another ontological basis. They do not start with presumed stable categories. Instead, actors – which include both human and non-human entities – produce practices through intra-activity and

networks of relations. In the current study, I apply the twofold perspective as *mixed* theory, that is to say an approach towards the material that is "guided by notions of empirical inconsistencies and paradigmatic discrepancies" (Koro-Ljungberg, 2004, p. 603; cf. Patterson, 2018). The purpose is to bring forth tensions and inconsistencies in the practices of emerging interdisciplinary research: a conflicting dynamic between the participants' information work as part of actualizing their particular research as recognizable, and on the other hand, the chaotic and unexpected effects that their information work forms part of through unique events.

4 Methodology

In the current chapter, I present the study setting: the department, the participants, and my access to the participants' information work. Next, I present the choices I made regarding methods. I also explicate assumptions about data production. Last, I explicate my ethical considerations. The analytical strategies of the three articles, and questions regarding research quality across them, will be discussed in Chapter 5.

4.1 The department

The empirical work that feeds into this thesis is based on a series of qualitative interviews conducted between 2015 and 2017. The site of this empirical work is a department (hereafter referred to as *the department*) located within a Scandinavian tertiary institution. The department draws together researchers with diverse disciplinary backgrounds across the humanities, social sciences and health-related research. When I first visited the department in the spring term of 2015 there were approximately 30 PhD students enrolled in the PhD programme and approximately 50 senior researchers affiliated with one of the department's four main research groups. Research at the department spans a broad range of research topics. The researchers adhere to various epistemological frameworks and methodological and theoretical traditions. I became interested in the department not only because of the diversity among staff and their research interests, but also because of the department's self-presentation to external audiences. On their web pages, they flagged their research as based in multiple methods, theories and concepts and their PhD-programme as crossing disciplinary boundaries. Simultaneously, they did not state any given interdisciplinary research strategy or a clearly delineated established interdisciplinary field.

4.2 Participants and access

I recruited 14 researchers, i.e. 9 PhD students and 5 senior researchers. To ensure the inclusion of this multiple diversity in my study through the information work of these researchers, I kept the following selection guideline in mind throughout the recruitment process.

- The participants should differ in terms of disciplinary backgrounds.
- In terms of their writing, they should interact with other researchers across epistemological boundaries. For instance, the PhD students should have supervisors of different disciplinary origins and the senior researchers should receive feedback and

comments from colleagues or co-authors having discipline-related career trajectories different from their own.

- Participants should be in the early stages of work on a manuscript intended for publication
- They should be willing to meet with me for interviews up to three times throughout their process of writing a scholarly manuscript from draft to publication.

Early in 2015, I contacted the coordinator of the PhD programme at the department. After an initial conversation, the coordinator introduced me to researchers at the department. The coordinator invited me to attend a joint meeting for researchers who teach and supervise at PhD level at the department. He also introduced me to the head of the largest research group who in turn invited me to attend a joint recurring meeting for research staff affiliated with the research group. Finally, I attended the PhD students' recurrent joint lunch seminar. In all three meetings, I presented my project and flagged my intention to recruit participants for my study. Two of the PhD students approached me immediately after the lunch seminar, expressing an interest in my project. These two PhD students, in addition to the head of research and the coordinator, became crucial gatekeepers who facilitated my further recruiting of participants at the department.

While I presented my project in the meetings, I emphasized that my intention was not to assess their practices against any given conception of interdisciplinary research. Rather, I conveyed that the premise was to study challenges and opportunities in settings were researchers draw upon literature across disciplines and deal with epistemological diversity among peers, partners or supervisors. Apparently, this premise resonated well with my gatekeepers. My initial meetings confirmed both the department's flagged disciplinary multiplicity and the lack of a shared or agreed-upon interdisciplinary framework. One of the PhD students sent me a research report on interdisciplinary challenges that she saw as illustrative of her own experiences. The coordinator referred to the department's ambition of nurturing disciplinary methodological cross-fertilization. In his opinion, research at the department needed to strengthen their aptitude in interdisciplinary boundary crossing. He welcomed my interviews because, in his opinion, they could provide an opportunity for the participants to reflect upon this issue. The head of research also told me that she had personally experienced difficulties in getting published across boundaries of field-specific journals. She stressed that the interdisciplinary setting of her work entails a great deal of frustration.

After the meetings, an invitation letter (Appendices 1 and 2) was distributed to the email lists of the respective groups. In the invitation email, I encouraged potential participants to contact me. Additionally, my gatekeepers put me in touch with colleagues they believed would make interesting candidates for my study. By early September 2015, I had recruited the nine PhD students who became part of my study. In the recruiting process, I had individual initial meetings with all of them, discussing practical issues regarding my plan of interviewing them multiple times over a relatively long period.

Compared to recruiting PhD students, recruiting senior researchers turned out to be a slower process than expected. Whereas all the researchers I became acquainted with were interested in and positive towards my project, they were either not in a writing process matching the criteria, or they did not respond to my emails at all. I do not know the reasons for the lack of response, but several of the researchers that I did recruit, told me that they were concerned that their participation would not benefit my project. They described a situation in which time constraints due to application deadlines and teaching obligations made scholarly writing processes hard to plan, and they thought that this unpredictability was a problem in terms of a longitudinal participation in my project. Towards the end of 2015, I attended a new staff seminar. I presented my project and clarified that I would be interested in their latest writing experiences, and that participation did not presuppose a longitudinal study of a singular writing process. By the end of January 2016, I had recruited five senior researchers.

4.3 The hybrid interview series

Practices implies extra-linguistic features of social realities. Thus, practices are arguably hard or even impossible to make available by techniques based on linguistic tools such as interviews. Reckwitz (2002, p. 259), for instance, reasons that "Practice theory 'decentres' mind, texts and conversation. Simultaneously, it shifts bodily movements, things, practical knowledge and routine to the centre of its vocabulary". Reckwitz' statement indicates limitations set by language-dependent methods. It points to the problematic status of data produced by the discursive interactions of research interviewing when the aim is to gain insights about practices that include doings that are not necessarily available to us in the form of linguistically expressed understandings. For these reasons, across the literature, practice researchers forward ethnographic

approaches that put emphasis on *observation* as practice-theories' corresponding method par excellence (Schatzki, 2012; Marten, 2012).

Sometimes, however, observation is a restricted option and creative mixing of methods is necessary (Nicolini, 2009; Marten, 2012; Thomson, 2018). In the current study, both practical and ethical restrictions applied. Scholarly authors' activities of identifying, evaluating, applying, omitting or including literature to their writing occur at unpredictable points in time. It was not practically realistic to uphold an ethnographic ideal of obtaining naturally occurring data (Silverman, 2014) by observation of these activities throughout the participants' writing processes. As one of my participants humorously put it, "you are welcome to sleep over in my office, because I never know when *what* will occur when I am in the process of writing". In addition, it was ethically problematic to observe my participants in settings where my interest in their writing could put their internal anonymity at risk (see section 4.5), for instance during supervision, or in seminars at the department. Moreover, to the participants, the writing process was intimately personal, a process in which they felt vulnerable. One clear indication of this vulnerability emerged early in the recruitment process. Originally, I planned to include focus group interviews. The majority of the participants were reluctant to participate in such interviews because they did not want to expose their writing process in public among their peers (see section 4.5). For these reasons, I do not comply with the ethnographic ideal. Rather, I re-design, mix and tweak my methods according to the practical and ethical demands of the particular situations in which I set out to engage with my participants' activities.

I designed a series of three individual 'hybrid interviews' with each participant. Hybrid interviews are interviews that in various ways hybridize conversation and observation. Examples are walking interviews (Kuntz & Presnall, 2012) visual elicited talk (Hicks & Lloyd, 2018), interviews to the double (Bruni & Gherardi, 2001; Niccolini, 2009) or guided tours (Thomson, 2018). The interview series I designed blended traditional semi-structured interview-guide based conversations with talk-aloud search sessions and walk-throughs of the references in the participants drafted and/or published articles. The individual interviews took place between September 2015 and June 2017, each at different stages of the individual participant's writing process, i.e. ideally when the participants were drafting or outlining an article; then, when they were about to submit their manuscripts for publication, and last, when they revised their manuscripts based on reviews or

editors' feedback. I conducted approximately 55 hours of interviewing distributed over 32 interviews. Interviews lasted 90–120 minutes.

The first interview focused on the context of the participants' research and included conversations about their plans for their next manuscript. It included topics such as their disciplinary or professional backgrounds, collaboration with colleagues or with supervisors, disciplines and research traditions of relevance to their work, prior experience with publishing and with scholarly genres, information searching habits, and strategies for mapping out literature of interest to their writing (Appendices 3 and 4).

The second interview consisted of three parts. The first part addressed the participants' writing processes. With the PhD students, this part of the interview addressed the manuscripts they were currently working on and included questions such as "what has happened with the manuscript since the last time we met? How did the writing process go up to this point? What kind of feedback did you receive and from whom? Did you experience any upturns or crises?" With the senior researchers, this part of the interview included conversations about selected recent publications. As described earlier, with the seniors, I was not following the development of one particular manuscript. Instead, at the end of the first interview we agreed together on one or two recent publications that we would discuss in more detail in the second interview. The next part of the interview consisted of a walk-through of the reference lists of the participants' manuscripts. With the PhD students, this would be the reference list in their current manuscript-in-progress. PhD students let me read their manuscripts prior to the second interview. In this part of the interview, I asked the PhD students and the senior researchers alike to explain each reference in their manuscripts. The introductory question was what does the reference do for the participant in the particular manuscript? Some of the follow-up consisted of questions I designed for each informant, addressing issues peculiar to their individual manuscripts. The last part of the interview was a talk-aloud search session. This session started by identifying a topic about which they currently needed to find more literature. Before starting the search, I emphasized that they were free to start looking wherever they chose, and I instructed them to explain the steps they took when looking for literature. I also explained that the search session would end the moment they had identified one or more documents they felt were useful for their further work. The interview guide for these second interviews differed slightly between the individual interviews, since follow-up questions

varied depending on issues that caught my attention while reading the researchers' manuscripts (see Appendix 5).

The third interview addressed peer reviews and editors' comments received, and as such was with the PhD students only. As with the second interview, this interview consisted both of generic questions that applied to all participants and of questions particularly adjusted to their individual manuscripts and reviews. Generic questions were open questions about the changes they had made to the manuscript since the second interview, their general impression of the reviews and their supervisors' responses to the reviews. Prior to the third interview, the PhD students let me read their correspondence with journal editors and the peer reviews of their manuscripts. Questions prepared particularly for the individual participants were based on my reading of this material. These questions addressed particular achievements, problems or challenges pointed out by the reviewers. Often topics that the participants had brought up in earlier interviews resurfaced by the comments provided by reviewers, such as uncertainties regarding main arguments, or participants' insistence on introducing certain disciplinary perspectives, particular authors or theories. I prepared follow-up questions to ensure that we addressed these topics in the third interview as well (see Appendix 6).

However, I was not able to remain consistent with my original plan of conducting a series of three interviews as described above with all participants. First, and unexpectedly, it took me longer to recruit senior researchers than PhD students. When I started interviewing seniors, I had already spent seven months interviewing PhD students. This resulted in differences in my engagement with the participants' writing process between these two groups of scholarly authors. Second, because writing and publishing are unpredictable processes, for some participants I needed to combine interviews. After the first interviews, I agreed with my participants that they were to contact me as they got closer to deadlines for submission of manuscripts to publishers. Two participants experienced a quick writing process and had already submitted and received reviews by the time they contacted me. For these two participants I combined the second and third interview. Another participant did not receive a review within the period of my fieldwork. I also included one PhD student in the study who did not meet the last two points on my inclusion guideline. This participant was among the first scholarly authors who approached me for informal conversations at the department and had just received reviews on the two last articles to be included

in his PhD thesis. His experiences in dealing with feedback from supervisors who had differing viewpoints on his manuscripts, as well as challenges he had experienced getting published by journals, made him an interesting participant. One combined interview with this participant is included to the data material of the study. Table 3 provides an overview of the number of meetings with each participant and of how the three interviews are distributed across these meetings.

With one exception, all interviews took place in the participants' offices or designated workspaces at the department. In addition to the interviews, my visits to the department led to informal conversations in the hallways and the common areas, for instance during lunch.

Participant	First meeting	Second meeting	Third meeting
PhD 1	First interview	Second interview	Third interview
PhD 2	First interview	Second interview	Third interview
PhD 3	First interview	Combination of second and third interview	-
PhD 4	First interview	Combination of second and third interview	-
PhD 5	First interview	Second interview	Third interview
PhD 6	First interview	Second interview	Third interview
PhD 7	Combination of first, second and third interview	-	-
PhD 8	First interview	Second interview	-
PhD 9	First interview	Second interview	Third interview
Senior 1	First interview	Second interview	-
Senior 2	First interview	Second interview	-
Senior 3	First interview	Second interview	-
Senior 4	First interview	Second interview	-
Senior 5	First interview	Second interview	-

Table 3: Overview of interviews with each participant.

4.4 Underlying assumptions about the production of data

Three assumptions about interview data underpin the hybrid interview series described above. The first assumption is that data produced by interviews inform the inquirer simultaneously about social realities *out there* and realities as produced *by* the method. Methods are encounters between people, and methods should be treated as such (Warren, 2012, p. 130). In my application of interviews, I follow Holsteins and Gubrium's (2004) emphasis that all research interviews are active interviews in which the researcher needs to address both the 'what' and the 'how' of the

interview. Whereas the 'what' of interviewing concerns the content of the questions asked and answers given, the 'how' points to the constructive part played by the stock of knowledge that *all* parties bring into the interview. In the current thesis, this stock of knowledge is grounded in experiences embedded in multiple positions, such as for instance being a supervisee, a PhD student, a particular disciplinarian or a mix of these (Gullbekk & Byström, 2019). Likewise, as the interviewer, my knowledge base is equally embedded within various positions. These positions may for instance be that of a PhD student, a librarian, or a LIS researcher. According to Holstein and Gubrium (2004, p. 149) "meaningful reality is constituted at the nexus of the hows and the whats of experience" and consequently necessitating a constructivist sensibility by which to recognize data as jointly produced. Interview data do gain value as a partial access point to realities outside the interview (Pilerot et al., 2017; Martens, 2012). In the current thesis, however, a constructivist sensibility also implies an awareness of how active interviewing does more than merely elicit accounts of practices enacted outside the interview.

The second assumption is that there is no opposition between data elicited by observation and data elicited by conversation. Field researchers should not, according to Atkinson and Coffey (2003), "… assume that what is done should enjoy primacy over what is said, and that therefore observation and interviewing stand in opposition to one another". Rather these authors argue, actions "are understandable because they can be talked about. Equally, accounts – including those derived from interviewing – are actions (p. 416)". In this vein, I treat language as the mean by which the participants and I mutually make observations understandable. In the interview series, I included activities through talk-aloud search sessions. Furthermore, I included documents produced by the participants and made them objects of inquiry during walk-throughs of references. I also included peer reviews. Analysis of artefacts (e.g. Hartel & Savolainen, 2016; Hicks & Lloyd, 2018) and of texts are much used techniques in the study of practices (Bueger, 2018). The purpose of analysing texts in studies of practices is often "to interpret them in light of the practices necessary to produce them, how practical knowledge or means of using these texts are ascribed to them, and what ways of receiving and using these texts are viable" (Bueger, 2018, p. 153). In the walk-through of references, participants' manuscript drafts and published articles are texts through which the participants and I together read their practices as meaningful configurations of activities.

The third assumption is that in the hybrid interviews, the discursive and the non-discursive intertwine (Barad, 2003; 2007). Holstein and Gubrium's (2004, p. 156) emphasis on the "dynamic interrelatedness of the whats and the hows of interviews" implies more than a sensibility towards how discursive resources are employed in conversation. Nearly all interviews took place in the participants' offices. In these settings, matter also came to matter. Data produced through active interviewing also include non-discursive, tacit, bodily and material aspects of practices and of practising. Personal book collections, file-folders, notebooks, and even back-aces enmeshed both spatially and temporally and gained significance as regards the production of data (Gullbekk, 2019).

4.5 External and internal ethical considerations

Both *external* and *internal* ethical considerations apply to the current thesis work (cf. Floyd & Arthur, 2012). External considerations concern issues that are identifiable at the outset of the research. These were also mandatory in terms of the necessary ethical approval of the research duly obtained from the Norwegian centre for research data (NSD). The basic external ethical considerations as regards my study imply questions of confidentiality, informed consent and anonymity. Prior to my first meetings with the participants, I distributed an information letter (Appendices 1 and 2) explaining the methods used in the study including the use of sound recordings of the interviews. All participants signed a letter of consent (see Appendices 1 and 2) at the time of the first interview. In the information letter, I emphasized that participants were free to withdraw their consent at any time during the course of the project. In the letter of consent, I also included two tick boxes: one for the series of individual interviews and one for focus group interviews. All participants ticked off for individual interviews. Some did not want to participate in focus groups, and others ticked this box but expressed a reluctance towards participating in focus groups. In the information letter, and in the subsequent first meeting, I ensured the participants that they would not be identifiable in any publications resulting from the study. During transcription, analysis and writing I have replaced all names with pseudonyms. I have avoided using the name of the university where the department is situated or any other institutions mentioned by the participants when talking about prior experiences or when talking about collaboration partners. Furthermore, in the thesis and in the included articles, I do not name the

particular combinations of disciplinary or field-specific affiliations and experiences that constitute the participants' academic profiles.

Internal ethical considerations evolved once I engaged with the researchers at the department. Floyd and Arthur (2012) discuss such consideration in the context of insider research, i.e. research settings where researchers conduct research in their own organization, and where they have to deal with the double role of being simultaneously employee/colleague and of being researcher. Particularly, in longitudinal research, these authors claim that researchers have to balance their roles as detached researchers and as involved colleagues; they have to steward both insider knowledge and the anonymity of their participants during the course of their engagement with people populating the field. I did not conduct insider research in Floyd and Arthur's sense of the term. I was not doing research within my own organization. However, I too had to deal with insider/outsider dynamics throughout the project. As PhD students conducting empirical research, the participants and I encountered situations in which we became mutual insiders. With the PhD students, conversations sometimes had a tone of implicit understanding of the experience of being novices to academic writing and publishing. For instance, one of the participants described how she found the process leading up to submitting her first article surprisingly smooth. I started my immediate follow-up question by saying "have you…" upon which she answered even before I finished my question, "No, I did not actually experience any crisis". "How did you know what I was going to ask?" I replied. The participant just laughed and winked at me. Also with the seniors, a mutual sense of sharing an insider familiarity with an academic culture occurred. For instance, one of the professors took it for granted that I knew the mechanisms involved in informal academic hierarchies. In one of the interviews she described co-authorship as particularly challenging. It is a question of "who gets their names taped on just because they have the most clout" she stated. She added that this is something I probably know.

In the field, I experienced that this sense of mutuality between the participants and me made them open up and initiate conversations that included privileged and sometimes confidential information. Both tears and laughter occurred during the conversations I had with the participants, and every now and then the participants added a "please don't use what I just said", or "can this be off the record?" Seniors and PhD students alike shared both positive and negative experiences, occasionally linking both kinds of experiences to particular persons both inside and outside of the

department. In some cases, positive and negative episodes and examples were obviously shared knowledge among researchers at the department, but this was also knowledge that was individually coloured by the participants' various positions and viewpoints. Furthermore, negative experiences sometimes pertained to lines of conflicts and to issues of power. This underscored that more than external anonymity was required.

Pseudonyms and omissions of affiliations are measures that safeguard the anonymity of the participants when external parties read the results of the project. Other measures were needed to ensure the anonymity of the participants towards peers, colleagues or other stakeholders within their own organization. When *in* the field, I had to be careful about how I used my accumulated knowledge about the participants' situation. It was tempting, for instance, to test different perspectives on particular phenomena or events across participants. Reckless use of information given in confidentiality, however, could easily have made the participants vulnerable to one another. Beyond my presence in the field, in further analysis and writing, I had to decide what to exclude, what to include and how to include it so as to protect participants' anonymity. For instance, participants' figures of speak or the characteristics of particular episodes as described by them are easily recognizable among people who share an everyday work life with the individuals in question. I had to take this into account in the ways I depict viewpoints, events and understandings. For instance, quotes, that may be very apt to illustrate a position, understanding or experience, are not included if they refer to situations or figures of speak that divulge the identity of the participant if read by other insiders at the department.

Cresswell (2007, p. 57) problematizes ownership to data and to the telling of individual stories that emerge through qualitative research. Throughout the research process, it became clear that I became accountable to multiple practices of producing data and narrating results. Most prevalently, I became accountable in terms of both the practices the participants' were engaged in and the research practice that I myself was carrying out and carrying through. In academia, reputation is key in individuals' career-development (Becher &Towler, 2001). Reputation grows from the interrelated dynamic between achievements, access to networks and the judgements made by influential people in these networks. Researchers early on in their careers are particularly vulnerable to this dynamic, as they are at the outset of building their reputation. The participants expressed this vulnerability in various ways throughout the conversations and encounters. Some

participants who had refused or were reluctant to participate in focus group interviews told me that they would be happy to talk with me about their writing process, but less so in public in the context of a focus group. In addition, several participants described their fear of not getting things right in situations where experts or more senior members were present or they described their feeling of being made small in instances where they felt misunderstood by researchers who have disciplinary background different to from theirs. It was important to me to respect the participants' vulnerability and to take into account the participants' ownership of their own reputation building and the personal stories they shared with me. At the same time, I was present in the capacity of doing research, deeply engaged in my own discipline-specific reputation building. I could not omit data, e.g. stories, incidents, reflections or understandings of relevance to the knowledge that I, together with my participants, were in the process of creating. I have aimed to anonymize the participants in a way that balances this dual commitment.

5 The three articles

In this chapter, I present the three articles included in the thesis, their main discussions, results and conclusions. The articles address theoretical, empirical and methodological aspects of the production and communication of knowledge in emerging interdisciplinary research. I end this chapter by discussing analytical strategies and issues of research quality across the articles.

The three articles are:

Article 1: Gullbekk, E. (2016). Apt information literacy? A case of interdisciplinary scholarly communication. *Journal of Documentation*, *72*(4), 716-736.

Article 2: Gullbekk, E. & Byström, K. (2019). Becoming a scholar by publication – PhD students citing in interdisciplinary argumentation, *Journal of Documentation*, *75*(2), 247-269.

Article 3: Gullbekk, E. (2019). What can we make of our interview data? From interdisciplinary to intra-disciplinary research. In *Proceedings of the Tenth International Conference on Conceptions of Library and Information Science, Ljubljana, Slovenia, June 16-19, 2019. Information Research,* *24*(2), paper colis1934. http://InformationR.net/ir/24-4/colis/colis1934.html

5.1 Article 1

Gullbekk, E. (2016). Apt information literacy? A case of interdisciplinary scholarly communication. *Journal of Documentation*, *72*(4), 716-736.

The purpose of this article was to explore the aptness of select notions of 'information literacy' to the analyses of interdisciplinary scholarly communication. The article explores two specific contributions to the information literacy research, namely those of Lloyd (2010a; 2010b; 2012) and Andersen (2006; 2008). Both are prominent representatives of a social turn in LIS by introducing practice theories and rhetorical genre theory, respectively, to information literacy research.

In the article, the selected notions of information literacy were tested against two different conceptions of interdisciplinary scholarly communication. The first conception is 'weak communication' (Holbrook, 2013). This notion recognizes an integration thesis by which interaction across disciplinary boundaries – in communication terms – imply work aimed at overcoming differences in disciplinary terminologies and worldviews. Interdisciplinary information work becomes part of a joint commitment to ensure weak communication, which is based on interlocutors' shared tacit understandings, such as shared and agreed-upon genres and shared criteria for judging one another's arguments. This conception of interdisciplinary scholarly communication emphasizes consensus. The second conception, namely 'strong communication' (Holbrook, 2013)*,* takes an opposite starting point, i.e. interlocutors' experience of lacking words, concepts or language in moments where weak communication breaks down. In these moments, inter-subjectivity among interlocutors become problematic. Scholars adhere to different genres and lack shared rules of judgement. In strong communication, fundamental assumptions are opened up and questioned. Genres emerge that are not mere integrations of working disciplinary genres, but rather novel co-creations. Truths and disciplinary identities are at stake for those communicating. By discerning theoretical elements in the works of Lloyd and Andersen, the article demonstrates first how practice theories and genre analysis underpin examinations of interdisciplinary scholarly communication as aimed towards integrated interdisciplinarity and ancillary states of weak scholarly communication. Second, the article discerns elements in Lloyd

and Andersen's conceptualizations of information literacy that are promising for an analysis of strong communication and information work in emerging interdisciplinary research.

Lloyd's aim is to enable information researchers to understand an information-literate person "… as an expert user of information who, through their information practice, develops a deep connection with their information landscape, a fluency with the modalities of information valued within it …" (Lloyd, 2010b, p. 30). Besides socio-cultural learning theory, Lloyd draws upon several practice theoretical contributions including Wenger's work on communities of practice and Schatzki's site ontology. These contributions imply different notions of 'context' as they offer different deliberations of the mutual constitution of structure and agency. When emphasis is on communities of practice, learning and identity-formation figure as key agential mechanisms. Learning and identity-formation account for practitioners' fluency in information landscapes and for reproduction and stabilization of the community within which this fluency counts. Keeping with Schatzki's (2002) site ontology on the other hand, that what is sanctioned and valued as information is reflected in activities and in the relating of people and of material arrangements. In Schatzki's work, agency is simply doing, and doings gain significance by dint of practices' organization. This organization is ontologically decoupled from communities. Practices and their organization are open ended in terms of how practices change and rearrange. The practice theory building blocks that underpin Lloyd's notion of information literacy thus contain different offerings when it comes to understanding practitioners' information literacy.

With reference to rhetorical genre theory, Andersen (2006) theorizes information literacy as 'genre knowledge', i.e. interlocutor's knowledge about the domain-specific discursive conditions for production, access and use of information. Genre knowledge implies interlocutors' insight into the rhetorical situation that is the interaction between "writer, purpose, audience, subject and context" (Andersen, 2006, p. 217-218). To Andersen (2006), genre knowledge is a form of critical interpretive capacity. Information-literate writers understand the social organization of information and information as domain-specific investments of intentions, interests and purposes. Information-literate writers also develop the capacity to link up invested information in arguments that work to further communicate with audiences in discourse communities. Similarly to Lloyd, Andersen offers a view on information literacy that theorize context as intrinsic with bound collectives, i.e. discourse communities. Both stress information literacy as based in participants'

joint understandings and provide accounts for the inter-subjectivity that secure the re-instalment of weak communication and an integrated interdisciplinarity. However, Anderson also draws on analytical concepts that highlight genres as only stabilized-for-now forms of social action. Genres are forms of social action that encompass centripetal-centrifugal tensions (cf. Bakthin, 1986). Writers' utterances do not always reproduce or conform to the genre conventions valid within communities. In light of these theoretical features, utterances are pushed out across networks with competing values, perspectives or ideas. These are processes that push for changes in genres.

Those who produce utterances use repertoires of genres skilfully *in* practice. Article 1 demonstrates how an analysis of how these repertoires reproduce, change or emerge is conditioned by choice of components of theories. The article argues that in analyses of activities in settings where interdisciplinary research is emerging, and participants are likely to find themselves in situations of strong communication, conceptualizations should give practices ontological priority over bounded groups or communities. The article inspired the design of the study reported in Article 2. Article 2 focuses on changes and rearrangements in citing practices in instances of emerging interdisciplinary knowledge construction and instance of strong communication.

5.2 Article 2

Gullbekk, E. & Byström, K. (2019). Becoming a scholar by publication – PhD students citing in interdisciplinary argumentation. *Journal of Documentation*, *75*(2), 247-269.

The aim of this article was empirically to examine researchers' construction and communication of knowledge as it occurs through their production of publishable interdisciplinary article manuscripts. Article 1 examines how novice scholars at the department understand and act upon rhetorical situations in an interdisciplinary setting for scholarly communication. It explores information work among PhD-students engaged in citing the work of others in efforts to strengthen their arguments and convince their audiences. The article investigates complexities in scholarly subjectivity as enacted through these citing practices.

In the study, 'subjectivity' denotes PhD students as acting agents. Subjectivity encompasses the students' engagements and identifications with subject positions connected to various disciplinary citing practices. In the article's analytical framework, subject positions reflect a progressive duality in the structuration of citing. In the case of this study, a subject position (cf. Davies & Harré, 1990)

is a medium for citing practices, that is the practically and normatively organized nexus of information-related activities such as expressing viewpoints by citations or picking out citations for further communication. Simultaneously, subject positions are changeable outcomes of citing practices. Positions are realities that are socially constructed and negotiated in and across particular rhetorical situations. Positions merge, change and arise as related to the negotiations of correct or acceptable use of citations in the students' writing. In the article, and due to anonymization of the participants, these negotiations are described as happening between X-, Y-, and Z-disciplines, which together form strands of the indistinct interdisciplinary area (I-discipline) of the PhD programme. X signifies disciplines that students have previously engaged with in their studies or work. Y signifies disciplines with which students familiarize themselves with and draw upon in their PhD research. Z signifies disciplines relevant to the PhD programme but from which the participants distance themselves. In the article, the students' understandings of the rhetorical situation of argumentation and of the subsequent activities of linking information in argumentation are discerned. Furthermore, the negotiations of subject positions across the X-, Y-, and Z-disciplines and in interactions with various stakeholders, former and present peers, supervisors, reviewers and journal editors, are analysed.

The students refer a rhetorical paradox of argumentation when talking about their writing. They are simultaneously 'bringing in something new' to the situation and 'establishing common ground' with their anticipated audiences. In the students' understanding, knowledge creation demands the introduction or the re-connection of elements not yet shared by interlocutors in the rhetorical situation. This, however, must not happen at the expense of ensuring a common ground for communication. Two main interrelated understandings of the activity of linking information, i.e. citing, in argumentation occur among the PhD students. These understandings resonate with the paradox. The first is 'pushing the boundaries of argumentation', which is referred to as three understandings of how to move information across boundaries. Students 'claim weaknesses'. Based on insights in X-discipline, they look for fallacies or insufficiencies that open for criticism in Y-disciplines, or vice versa. They seek out citations that can substantiate such claims across disciplines. They 'contest assumptions', i.e. they look for discrepancies in explanations or methodological perspectives. They 'demonstrate the strength of others', i.e. they identify sources that can demonstrate *why* insights from one particular field provide valuable insights in another or they make explicit what a specific methodological approach may enable them to achieve. The

second understandings of the activity of linking information in argumentation is labelled 'keeping the argument within boundaries' and depicts three understandings aimed at accommodating multiple audiences. The students 'bring in broad gauge classics'. They cite scholars who are widely acknowledged across disciplines. They also 'translate by kings and queens', i.e. they make an effort to substantiate criticism across X- and Y-disciplines by citing scholars who already have a standing among audiences in the targeted discipline. Lastly, they 'measure doses'. They make sure that their reference lists contain the sufficient balance of citations to kings and queens or former publications by their target journals.

The further analysis shows that through the different understandings of dealing with the rhetorical paradox and of the linking of information in the argument, the students negotiate subject positions across X-, Y- and Z-disciplines. They do so by different 'modes of identification' (cf. Wenger-Trayner & Wenger-Trayner, 2015). By identification in 'a native mode', the students become accountable to both an immediate and a biographically situated engagement with the literature. Subjectivity is defined, controlled and enabled by ways of doing and understanding that the students experience as shared over time with relevant others. Usually this mode of identification invokes positions shared with former and present peers and seniors in their X-disciplines. Identifications in 'a visitor mode' invoke accountability towards the Y- and Z- disciplines that they enter when conducting their projects. This mode of identification is characterized by interested imagination. Intentional or circumstantial encounters with various ways of doing research enable the students to see their work from different perspectives and to explore possibilities. Imagination becomes an asset both for adjusting subject positions available in a native mode and for establishing subject positions encircled by Y-disciplinary work. 'A citizen mode' of identification is entangled with alignment. Two alignments seem important in students' accounts of their writing, namely alignment with supervisors' viewpoints and alignment with perceived expectations as related to the PhD programme. One expression of alignment with supervisors who not necessarily share X-disciplines with their students, or a programme that does not necessarily accommodate a student's identifications in native or visitors modes, is to re-imagine common ground by trans-disciplinary categories such as 'doing social science' or 'being a methodologist'.

Students' aligned identifications in a citizen mode imply accountability towards the indistinct I-discipline at the department and the PhD-programme. Interactions with journals however, push for

re-alignment. At the level of individual students who submit for publication, accountability is assessed beyond the immediate settings in the department. At the level of the citation practice, the students must manage re-alignments by the understandings of linking information in the argument. Three possible re-negotiations occur among the students. First, they may 'stay native', i.e. a renegotiation directed toward a citizenship that encloses subjectivities accommodating the informants' identifications in a native mode. By this re-alignment, students seek to strengthen their X-disciplinary positions, for instance by submitting to journals that keep them as close as possible to their X-disciplines. They also oppose positions in visited fields, by putting extra effort into promoting native mode positions. Second, students realign by 'I-disciplinary footing', which is a renegotiation directed toward amalgamating native and visitor mode identifications. One way of doing this is to measure the doses enough to convince local peers and reviewers, or to submit to trans-disciplinary journals emphasising, for instance, certain methodological traditions. Lastly, students may 'go native'. This is often the case when they have to publish with journals strongly connected to visited Y-disciplinary fields. This last re-alignment makes it particularly problematic to develop sufficient citizenship within practices valued at the department.

The article concludes that the normative regulations of citing is an ongoing and open-ended process of negotiations. The students must adjust and adapt to shifting audiences' practices. In the various stages of the process, some subject positions come to count, others do not. The article indicates a missing intersubjective space for dealing with these shifts and negotiations.

5.3 Article 3

The aim of this article was to examine kinds of knowledge produced and justified by the interviews with researchers at the department. The article considers interview data in a context of research that investigates information work through practice lenses. In particular, it discusses what we can make of the data in terms of articulating knowledge about information work in emerging interdisciplinary research.

The article distinguishes between an 'element-based' and a 'post-humanist' practice lens (cf. Gherardi, 2016). Methodologically, these two lenses diverge in how they articulate phenomena in terms of ongoing relational accomplishments, i.e. in terms of performativity in practices. Element-based lenses view practices as ordered products. Focus is on how sets of activities configure by interconnected elements, such as rules, understandings and materials. Focus is on enactments

outside the interviews, and in how far interviews provide data that can inform representations made of these enactments. A post-humanist lens views practices not as ordered products, but as modes of ordering. In post-humanist terminology, phenomena such as information and knowledge are intra-actively coming into existence. (Barad, 2007, p. 33). The interview becomes an event of emergent and intra-active relational ways of knowing.

In the article, these lenses are put to use in a discussion of select interview abstracts from the interviews with researchers at the department. The interviews were carried out in the participants' offices and included interactions with manuscript drafts, databases, personal computers and bookshelves filled with literature. The interviews shifted between classic interview conversations based on an interview guide and situations where the interviewees explained their steps while conducting literature searching motivated by their ongoing writing. When the participants were asked to talk freely about how they went about finding literature for their writing, they typically conveyed what is important to them regarding literature searching in an interdisciplinary setting. They talked about principles for securing systematic literature searches and described choices such as using broad general tools in order to avoid disciplinary restraints. They stated principles showing that they certainly know how literature searches should be done, namely according to some systematic procedures.

Moving to a post-humanist lens, the article demonstrates two epistemological transitions in the production and analysis of the data. First, performativity comes to view in the here-and-now of the search session. Whereas reading the interview through an element-base lens make participants' 'knowing-in-practice' outside the interview partly accessible, reading interview situations through a post-humanist lens brings to view an entangled 'becoming-with-knowing'. The literature search as performed within the interview setting connected participants discursively, materially and bodily with both current and past activities. The participants start their searches by looking into articles stored in personal folders or by utilizing diverse search tools. Soon however, they carve out notebooks from dusty corners of their bookshelves, and refer to colleagues across the hall. When getting up from their chairs they reflect about bad backs and being old in the game. They discover reports that remind them of friends or family-members with whom they confer about disciplines in which they themselves lack training, and they ask me – the LIS-researcher – for advice while blushing with embarrassment when replacing systematic approaches with the above

strategies. The interdisciplinary literature search emerges by this discursive-material intra-activity of bodies, computers, databases, notebooks, office spaces and physical distances.

The second epistemological transition that occurs when moving from an element-based to a post-humanist lens is the inclusion of me in the entangled becoming-with-knowing. The participant, I, the particular books and notebooks, the computer, our moving bodies and the surrounding discourses are entangled forces producing shifts and contestations in the unfolding of intra-active becoming of the interdisciplinary literature search.

Empirically, the article provides insight into episodic events in the participants' research processes. Methodologically, the article demonstrates that the epistemological transitions from one lens to the other direct my attention to an intra-disciplinary information work as a practice-in-its-making in the event of literature searching, rather than to practices as enacted elsewhere. It also shows that in the event, I add to the complexity of a situation that includes several disciplinary perspectives. The article thus adds a complementary response to the call in Article 1 to give practices ontological priority in analyses. In the context of all three articles and their interrelationship with one another, the articles led to the twofold perspective in this thesis of practice-as-enacted and practice-as-performed.

5.4 Analytical strategies across the articles

In the present thesis, I view phenomena as performed by theory, methods and empirical instances as entangled. In other words, I include in the constitution of the phenomena studied my own practising of research, i.e. my theorizing manoeuvres and the methods I use. As a whole, the different analytical strategies that I apply across the three articles, and that evolved over the course of the study, reflect this entanglement. Considered concurrently and as a whole, the three articles also imply seemingly incommensurable ontologies and views of what constitutes research quality. Such inconsistencies form part of the participants' experiences of doing research at the department. In parallel, inconsistencies also form part of the current thesis research.

My project evolved over a considerable stretch of time because I conducted my PhD research part time over six years. The chronology of the three articles represent a trajectory of learning. It is a trajectory of engaging not only with the participants at the department, but also with the development that unfolds in the practice-based literature over the course of this time span. In what

follows, I situate the analytical strategies of the three articles in this line of development, and I point towards reflections on methodological considerations that I will return to in chapter 6.

The first article (Gullbekk, 2016) is a critical comparative analysis of concepts developed in LIS. In the analysis, I consider that in practice research, researchers apply an apparatus of *sensitizing* concepts to their analysis (e.g. Mol, 2010; Lloyd, 2012; Nicolini, 2017). Sensitizing concepts differs from definite concepts (Blumer, 1954). As Blumer originally put it, "whereas definitive concepts provide prescriptions of what to see, sensitising concepts merely suggest directions along which to look" (Blumer, 1954, p. 7). According to Blumer, sensitizing concepts do not allow "a clean-cut identification of a specific instance and of its content" (Blumer, 1954, p. 7), because such concepts "rest on vague sense and not on precise specification of attributes" (Blumer, 1954, p. 5). Rather, concepts are entangled with the empirical cases in reference to which they are coined. When used for analytical purposes in further research, i.e. as sensitizing concepts, they lose their direct empirical reference. What they are intended to do is to guide our gaze and indicate what is relevant. In the practice literature, the metaphor of a practice lens (Corradi, Gherardi and Verzelloni, 2010) neatly catches the essence of Blumer's sensitizing concepts. The strategy in Article 1 was to critically examine the scope of relevance when we readjust particular lenses to guide our gaze towards new empirical settings. In the article, I did so by assessing select notions of information literacy practices against two different conceptions of interdisciplinary scholarly communication. At the time of writing the first article, i.e. in 2015/2016, the selections of work analysed were credible representations of a line of social-turn thinking in the LIS literature. The analysis in article 1 demonstrates how certain concepts in the theoretical apparatuses – such as 'communities of practice' or 'discourse communities' – can create blind spots if applied as sensitizing concepts in studies of emerging interdisciplinary research. The article prepared the ground for giving practices ontological primacy over pre-configured entities such as disciplines or communities in my further research.

The second article (Gullbekk & Byström, 2019) is a practice-theory-framed empirical analysis of PhD students' citing practices. The strategy in this article was one of a stepwise deductive-inductive approach (Tjora, 2018). We identified topics in the transcribed interviews and labelled these by categories introduced by the participants themselves. We then conducted 'category zooming' based on the research questions (cf. Halkier & Jensen, 2011). This phase entailed a

dialogue between the empirically grounded themes and the theoretical framework. Sensitizing concepts that guided this further analysis were those of 'understandings', 'engagements', and 'positions'. The analysis reduces empirical complexity and enables a re-configuration of the normative texture of the citing practices that engage researchers' activities. It enabled grasping how scholarly subjectivities emerge through the various positions that the participants occupy, express themselves by, or negotiate between in the process of writing. The analysis demonstrates variations in the enactment of writing and citing practices, conflicts and tensions that emerge through practising. It demonstrates participant's vulnerability as becoming and evolving researchers, and the risks involved in having to negotiate their subjectivities at the boundaries of various disciplines. The credibility of the analysis in article 2, rests in standard requirements for the trustworthiness of the representations of reality described above as experienced and acted upon by the participants. For instance, the considerably long period of my visits to the department enabled me to familiarise myself with the jargon of the participants and to check my interpretations with the participants from one interview to the next, i.e. to establish ecological validity. Intercoder reliability was provided by the independent testing of categories against transcripts between the authors.

The third article (Gullbekk, 2019) is a critical reflection on the methods applied for data production, and of the kinds of knowledge they justify when applied to materially enriched interviews, i.e. interviews conducted in the office spaces of the participants allowing tools, texts and other artefacts that enter the unfolding interview interactions. The strategy in this article is to examine interview abstracts comparatively through two different practice lenses, namely an element-based lens and a post-humanist lens. The analysis demonstrates that depending on the lenses applied, materially enriched interviews produce different epistemic objects, and they enable different kinds of research results. The element-based lenses are attuned to practices as ordered products, indicating that interviews re-enact practice elements out there. The post-humanist lens is attuned to how the interviewer become part of the events studied.

Article 3 signposts that the phenomena studied are performative effects of the hybrid interviews, and thus challenge the premises for data production that article 2 takes for granted. Together, articles 2 and 3 respond in somewhat different ways to the ontological privileging of practices as

encouraged by Article 1. Putting these inconsistencies to work forms part of the methodological contribution of the thesis and will be discussed in Chapters 6 and 7.

6 Discussion

In this chapter, I address the thesis' three research questions in a discussion based on the articles, the theoretical perspectives and previous research in order to answer the main question of the thesis: How can a focus on performativity in research practices enrich our understanding of information work in emerging interdisciplinary research? I develop the results of the articles, and explicate how, in concert, they can enrich our understanding of information work in emerging interdisciplinary research. Article 1 prepared the ground for the empirical work that feeds into the thesis. This article called for granting practices analytical privilege over pre-configured entities such as disciplinary communities or other peer-groups in studies on interdisciplinary knowledge production and communication. Articles 2 and 3 respond to this call. These two articles constitute the main basis for this chapter's discussions. I return to previous research and this thesis' research contributions in Chapter 7.

6.1 Information work and performativity in research practices

In the following, I address the first research question: How do the researchers become part of the performativity of research practices when carrying out information work in emerging interdisciplinary research? This question is answered by applying the two perspectives of practice-as-enacted and practice-as-performed subsequently to the findings in articles 2 and 3.

6.1.1 Practice-as-enacted

Each researcher's individual manuscript is developed by unique combinations of disciplinary literature. Their literature searches and decisions as to what to cite are interwoven with the task of accommodating multiple audiences through their writing, making information practices and communication practices inseparable and intertwined aspects in carrying out of research (cf. McKenzie, 2005 cf. Talja & Hansen, 2006). Article 2 presents an analysis of these intertwined practices under the rubric of citation practice. The findings indicate that the researchers are carriers of some shared templates for a practice to be filled out by agreed ways of doing things (cf. Reckwitz, 2002). They have a shared twofold understanding of the rhetorical situation involved in producing a scholarly manuscript, namely that of bringing something new to the communication with an audience while simultaneously making provisions for a common ground for that communication to take place. They also share understandings of information-linking activities. In

order to push the boundaries of communication, they cite in order to claim weaknesses, contest assumptions and demonstrate the strength of alternative perspectives, methods or results. To keep their knowledge claims within boundaries with their audience, they 'bring in broad gauge classics', 'translate by kings and queens' in the target field and they 'measure the dose' of literature perceived as alien to their audiences. Likewise, Articles 2 and 3 also indicate that the researchers share some understandings as to how to conduct literature searches across the involved disciplines, namely by including cross-disciplinary databases (e.g. Google Scholar) that enable them to decouple from particular disciplinary identities, and that these searches should be conducted regularly and systematically. Furthermore, they also emphasise the importance of getting the literature right, meaning that they are responsible for understanding the language and epistemological framework of various disciplines (cf. Palmer & Neumann, 2002; cf. Pontis et al., 2017).

Throughout the course of drafting, writing, revising and finally getting accepted for publication, however, the researchers become part of a series of temporary re-enactments of a practice of producing and communicating knowledge. Practices change when new practice elements enter (Schatzki, 2002) or when practice elements become recombined across a landscape of practices (cf. Shove et al., 2012; cf. Wenger-Trayner & Wenger-Trayner, 2015). In article 2, two such changes through re-enactments become evident in the participants' work-processes. Elements – described by Shove and colleagues (2012) as materials, competencies and meanings – that become visible in these re-enactments are such elements as literature (materials), skills in composing a research paper (competencies), and the validity of applying specific literature to justify particular knowledge claims (meanings).

A first re-enactment happens as the participants negotiate their information-linking activities with colleagues at the department. The researchers invest considerable effort in aligning the positions that literature from different discipline-specific traditions lend support to in their manuscripts. The meaning component in the citation practice then changes with the researchers' different interlocutors and audiences. The validity of knowledge claims varies dependent on the extent to which the literature used is based on shared knowledge and a mutual understanding. At this level, and in the case of the PhD students, the researchers actively balance the mix of literature applied within a practice of 'doing supervisee' and of doing a PhD in a programme that somewhat

indistinctively is promoted as an interdisciplinary programme. This is done, for instance, by applying literature in combinations that justify their manuscripts as 'social studies' – as opposed to, for instance, psychological or demographical studies – providing common ground with their supervisors. Likewise, researchers within research groups may take similar steps in order to justify their manuscripts as aligned to the group's shared ambition of doing research hallmarked by methodological progress.

A second re-enactment happens in the researchers' interaction with publishers. In this context the validity of their claims to knowledge are assessed beyond the immediate community of peers at the department. In this context, there is a risk that the working alignments of practice elements established in the context of interactions taking place at the department break down. Some researchers are able to identify journals that accommodate for the frameworks of research worked out locally at the department. Examples of this in Article 2 include researchers who succeed in establishing a footing where, as one of the participants formulated it, one becomes "less of a disciplinarian and more of a methodologist", finding journals that accommodate such a footing. Often, however, the researchers are unable to identify journals that allow for the interdisciplinary mix they achieve to align through local interactions. They may publish with journals that favour research associated with the participant's disciplines of origin, making it difficult to sustain knowledge claims justified by literature from other disciplines they constantly visit throughout their research. They may also publish with journals associated with any other discipline that is made relevant through their research, making it equally difficult to sustain locally negotiated understandings of validity of knowledge claims as based in literature scattered across disciplines.

Based in a practice-as-enacted perspective, the above discussion brings into view a first facet of how the researchers become part of practices' performativity: the researchers' information work emerges as a coping strategy for dealing with a research process that unfolds as a continuous re-enactment of a practice of producing and communicating knowledge. Elements such as literature (materials), connecting claims by citations (competencies) and the validity of resulting knowledge claims (meanings) change and re-connect throughout the process. The researchers' efforts to make their unique research recognizable to various interlocutors and audiences is thus fragile and constantly prone to breakdowns in the enactment of practice at various stages of the process.

6.1.2 Practice-as-performed

The researchers constantly carry out information work aimed at aligning perspectives and frames in their research with the epistemological framework of their interlocutors and audiences (cf. Hyland, 2004, p. 20; Palmer & Neumann 2002). In the talk-aloud search sessions I conducted with the participants, several search episodes evolved around the task of combining and aligning perspectives and frame. Such episodes could occur at the outset of a project such as, for instance, when starting to draft research papers. They could also occur when conceptualisations or the framing was pointed out as problematic, for instance by reviewers. The following discussion of these episodes demonstrates a second facet of how the researchers become part of research practices' performativity.

The search episodes described in Article 3 are examples of situations where the researchers explore the use of particular concepts across disciplines or the combination of perspectives taken from different disciplines. A common characteristic was their complete situatedness; they were not pre-planned or systematic. Any initial activity, whether it was keyword searching in Google Scholar or browsing articles stored in a personal folder, prompted immediate interactions with a variety of sources available in their offices and invoked social relations that could span widely in time and space. For instance, the interest in the use of a particular concept across various disciplines could lead to discovery of familiar names, perhaps a colleague across the hall, resulting in readdressed searches. Rediscovered clues in personal folders become reminders of past engagements with field-specific conferences, or prompt the recovering of notebooks from these conferences from the bottom shelves of bookcases. Finds in the bookshelves may remind the researcher of friends or relatives who are trained in a particular discipline within which the researcher himself/herself may lack the profound insight that is desirable. A bag hanging by the door may contain a dissertation discovered while visiting a colleague or while attending a meeting at another university.

These encounters are more than a result of accumulated information and knowledge obtained by the activities of interdisciplinary exploratory processes such as scanning across sources or receiving information through developed networks (cf. Palmer & Neumann, 2002). They are singular events in which the accidental coming together of several actors (notebooks, colleagues, relatives, past conferences, dissertations) generates informational agency through their intra-action (cf. Barad, 2007). Such events are not fully fitting with the idiom of re-enactments in line with the

practice-as-enacted perspective. First, they are not easy to predict by any discrete element that enters the situation (cf. Latour, 1999). Exactly how intra-actions form informational agency is an outcome of the singularity of the event. Second, the event produces tendencies that emerge as a sense in the here-and-now. For instance, as described in Article 3, one of the researchers reacted with embarrassment when encountering possibilities arising in the events, as when he asks himself if he is taking a shortcut if he circumvents a systematic search by letting his sister explain a particular concept. The events produce possible, alternative and unexpected trajectories. The actors that are entering the event intra-actively co-produce virtual practices (cf. Massumi, 2015); just as much as, in concert, they actualize ways of doing research.

The former perspective of practice-as-enacted rendered visible the way researchers who carry out information work in complex interdisciplinary research develop and communicate their unique interdisciplinary manuscripts through recurrent re-enactments of recognizable research practices. Based in a practice-as-performed perspective, the above discussion brings into view a second facet of how the researchers become part of practices' performativity. The discussion shows how innovation and learning unfold through creative practices that are performative effects of a series of events unique to the researchers' particular work. The practice-as-performed perspective allows us a glimpse into the unfolding of learning and innovation in the here-and-now of doing research – regardless of its potential alignments with practices as enacted in concert. This perspective provides an opening for a further discussion about what is included and what is excluded throughout the process of producing and communicating knowledge in interdisciplinary research projects.

6.2 Implications for the researcher

The above discussions demonstrated two facets of how researchers become part of practices' performativity in interdisciplinary research. In the following, I will answer the second research question: What are the implications of this performativity for the individual researcher? This research question invites a discussion of how the facets of performativity create or fail to create intersubjective spaces for researchers' agency throughout their research processes.

6.2.1 The researcher in practice-as-enacted

The first step in the discussion is to consider consequences for the individual researcher of the enactments, re-enactments and breakdowns in enactments that occur throughout the researcher's research processes.

Throughout the process of drafting, revising and finally getting published, the researchers at the Department become accountable to shifting regimes of competences that enter the re-enactments of the practice of producing and communicating knowledge. Practices can be seen precisely as regimes of competence due to their normative texture (Nicolini, 2012), making the researchers accountable to various norms indicating correct and incorrect participation in a practice (cf. Rouse, 2001). Through the analysis in article 2, accountabilities to several such regimes emerge. By earlier experiences with disciplinary training and careers, the researchers carry with them ways of reading and applying particular information landscapes (Lloyd, 2010b). In the interdisciplinary situation, however, several other regimes gain significance and enter the enacted and re-enacted practice of producing and communicating knowledge. Literature from across disciplines become important to the researchers' manuscripts. Several researchers of significance – such as supervisors or co-authors – may embody competing regimes developed in various disciplines, and journal editors and reviewers may actualize yet other regimes. Through the re-occurring re-enactments, the researchers experience a complex normative structure (cf. Schatzki, 2002), one that is continually inconsistent and un-stabilized. The researchers carry out their information work in fractured information landscapes (Lloyd, 2020). What it means to be a competent and information literate researcher, that is, what constitutes validated information across the shifting information landscapes involved, or how to put that information to use in further communication, is constantly changing.

Article 2 demonstrates that the changing and shifting normative structures of the practice of producing and communicating knowledge is consequential at the level of researchers' subjectivity. The article scrutinizes formations of scholarly subjectivities as related to citing. The analysis presented in the article shows how the researchers' accountabilities to the different regimes of competence emerge through identifications with the various subject positions that the citation practice brings forth. The researchers demonstrate various modes of identification – in article 2 described as identifications in 'native mode' (identification biographically shared with others over

time), 'visitor mode' (the adjustment of native modes of identification when encountering work from other disciplines), and 'citizen mode'. The citizen mode of identification is the alignment of previous identifications and is an outcome of the first re-enactment of the citing practice, the re-enactment that takes place when the researchers negotiate their information linking activities with actors present at the department. The second re-enactment, the one happening when researchers interact with publishers, puts these aligned subjectivities at risk once more. It becomes evident that the shifting constellations of competencies and meanings (cf. Shove et al., 2012) in the continuous re-enactments represent a considerable pressure on the researchers' scholarly subjectivity. What it means to be an interdisciplinary scholar, the doing of interdisciplinary scholarship, is subject to the different regimes and audiences entering their work (cf. Butler, 1997).

Conflicts and inconsistencies are naturally inherent to any practice or practice landscape (Schatzki, 2002; Wenger-Trayner & Wenger-Trayner, 2015). Breakdowns in enactments that occur due to inconsistencies and conflicts can constitute moments of heightened reflexivity within an organization or a community of practice (Nordsteien, 2017). Reflexivity makes shared understandings and ways of doing within a practice available for discursive considerations (cf Giddens, 1991). Breakdowns in enactments can lead to a renegotiated intersubjective base for agency in a practice. However, the current study indicates that throughout the researchers' work on their manuscripts, intersubjective bases for such reflexive deliberations are weak and transitory, at best established only transitorily. The researchers' efforts to make the unique disciplinary mixes of their research recognizable, their alignment of accountabilities to field-specific literature and regimes of competence, and also their reflections on what it means to be an interdisciplinary scholar, become privatized.

6.2.2 The researcher in practice-as-performed

The second step in the discussion is to consider the consequences of the above indications of privatization of reflexivity in light of the practice-as-performed perspective. I have already discussed the episodes described in Article 3 as events within which several actors (notebooks, colleagues across the hall, relatives, past conferences, dissertations) come together. I also indicated how – in the events – phenomenon such as information become temporarily determinate by their intra-action (cf. Barad, 2007).

Likewise, in the events, *competencies* do not primarily come to light by virtue of the normative texture of practices and expectations of correct or incorrect practice. In events, competencies cannot be listed beforehand (cf. Latour, 1999), but are something actors acquire in the here-and-now of the intra-activity taking place. Information, knowledge, competencies – these are phenomena that evade description until the event has happened. In the events, researchers experience possible ways of doing information work in interdisciplinary complex situation, and possible ways of being interdisciplinary scholars, described in Article 3 as an intra-disciplinary becoming.

Hence, the events are spaces for exploring the virtual and not solely a space for actualizing practices. In the researchers' further communication, their creativity, learning and exploring of possible trajectories, and the unexpected outcomes of the events, encounter the enactment and re-enactment of the practice of producing and communicating knowledge. However, since the re-occurring enactments of the practice are only transitorily intersubjective, the risk emerges of making the researchers' interdisciplinary research processes episodic. If the research processes become a series of events with weak linkage to an intersubjective space for actions and reflections, it increases the pressure on the individual researcher, and may deprive the environment of opportunities for mutual learning and innovations.

6.3 Researching interdisciplinary research practices

The last research question addresses the implications of practices' performativity for the research data we co-produce (that is, the researchers and I, the LIS researcher studying their information work)? In the following, I discuss methodological implications of the twofold perspective of practice-as-enacted and practice-as-performed.

6.3.1 Researching practice-as-enacted

The practice-as-enacted perspective focuses on the enactments of agreed-upon constellations of competencies, meanings and materials. The perspective assumes that practices and their elements configure in actuality by the participants' mundane carrying out and carrying through of activities in socio-material contexts. The task of creating knowledge about the participants' research practice, that is, of producing valid representations of the participants' knowledge production and

communication, implies particular methodological considerations that reflect the perspectives' ontological assumptions.

The first consideration regards the appropriateness of the methods used. In the current study, I designed a version of hybrid interviews that brought together observations of the use of material elements such as literature, databases and the infrastructure of office spaces, and the verbalized understanding of activities and materials in use. The hybrid interviews respond to the assumption that practices are constructed through activity, and that practices are only in part accessible verbally. The hybrid interviews were discussed in Chapter 4.

The second consideration regards the extent to which my representations do justice to the authenticity of the construction process, to the elements brought together through it, and to the participants' experiences as related to the process (cf. Nicolini, 2009; Martens, 2012). This consideration applies throughout all steps of the qualitative research process, from the production of data, to analysis, interpretation and finally to writing reports. In Article 3, the consideration is discussed as a matter of reflexivity in the data-producing phase of the study. Here, reflexivity concerns my role as a researcher in the constitution and analysis of the data. A research interview is a practice in itself, entailing its own normative texture. As indicated in Article 3, in the standard qualitative interview, the participants convey what is important to them. However, the articulation of practice elements external to the interview happens jointly in the interaction between the participant and the interviewing researcher. As such, I must take this joint construction into account when considering the validity of the data produced and the analysis of the data (Holstein & Gubrium, 2004; Gubrium & Holstein, 2012; Nicolini, 2009). In qualitative research practice, several techniques and procedures ensure agreed upon standards of valid data and knowledge production. Triangulation of methods, as exemplified in the current study by the hybrid interviews, provide a basis for reflexivity by converging information from different sources (cf. Nicolini, 2017; Martens, 2012). The following up of interpretations made from one interview to the next, a version of member-checking, is another example that also applies to the current study.

Researching practice-as-enacted entails the above consideration of data production as a relational accomplishment involving both me as a researcher and the participants as the researched, however maintaining a focus on knowledge as a valid representation of the participants' realities as enacted outside the present study and its methods.

6.3.2 Researching practice-as-performed

Compared to the above practice-as-enacted perspective, the study of the participants' information work based on the practice-as-performed perspective implies different ontological assumptions. Researching practice-as-performed entails an examination of realities that materialize in the here-and-now of events. Phenomena studied, and the intra-acting actors and resources, only become temporarily determinate through the intra-actions happening in the events. The discussion in Article 3 turns such intra-active determinations into methodological events where my research design and instruments come together with the actors and objects of the studied field, inviting considerations as specific to the practice-as-performed perspective.

First, the analysis in Article 3 makes the inquirer visible as part of the intra-actions by which the data emerge. In one of the talk-aloud search sessions described, the participant makes me relevant to the situation through my capacity of being an academic librarian. In the event, I come to embody a discourse of systematics in information work. The participant would like to have me helping her sorting out literature at the library; she worries that she will not be up to the standards regarding the use of online search tools, and blushes with embarrassment when she encounters her own unsystematic approach to scholarly information. The interdisciplinary search session emerges intra-actively via the actors and the resources entering the event, me included.

A second methodological implication that emerges through the analysis in Article 3 is that the co-production of data happens as a joint analytical practice. The intra-activity taking place in the here-and-now is a particular instance of an agential cut (cf. Barad, 2007) that makes both the event, in this case an interdisciplinary literature search, and the actors involved, temporarily determinate. Certain actors and resources enter the event – others do not – and the actors read insights and patterns of differences into one another (cf. Barad, 2003). The interview guide I applied initiates the search session in a specific manner. I emerge as the embodied researcher-librarian. Certain past experiences with friends, relatives or other researchers across fields are invoked in the participants. Systematic approaches to literature searches materialize as indexing tools on the participant's computer. The talk-aloud search session performs an agential cut in a certain way in a specific instance, making everyone and everything involved co-responsible for the boundary-making practices of exclusion and inclusion, and moreover, co-responsible for any unexpected possibilities that arise for further actions and reflections (cf. Massumi, 2002).

The two perspectives of practice-as-enacted and practice-as-performed carry with them different ontological assumptions about researched realities. Hence, they invoke different views on the production of valid knowledge. The former keeps focus on knowledge as representations of the participants' realities outside the methods applied. The latter posits that the knower only becomes external within the events and the unfolding intra-activity (Barad, 2007). In the current study, I have made claims to both forms of validity. The two perspectives of practice-as-enacted and practice-as-performed are put to use within one and the same study. By doing this, I have made inconsistencies, connections and disconnections between unique interdisciplinary situations and shared recognizable research practices visible and available for discussion.

7 Conclusions

The current thesis examines interdisciplinary researchers' information work with a focus on performativity in practices. This focus has contributed new insights into the production and communication of knowledge in emerging interdisciplinary research. This chapter explicates the empirical and methodological contributions of the thesis, addresses implications, limitations and offers suggestions for future research. Lastly, it provides concluding remarks.

7.1 Empirical contributions

The participants in the study develop their manuscripts through unique mixes of disciplinary literature, and they do so in an environment with a low degree of shared epistemological frameworks or agreed-upon definitions of interdisciplinary research. Hence, the thesis provides insights into researchers' information work in situations that are given limited attention in previous research. The researchers carry out information work aimed at making the claims of their unique manuscripts recognizable to multiple audiences. Similar to the interdisciplinary humanities scholars in Palmer and Neumann's (2002) study, researchers' must continuously contextualize their claims in various research communities' epistemological frameworks. The thesis finds that recognizability emerges through recurring temporary enactments of a practice of producing and communicating knowledge. This finding also supports Pilerot's (2015) claim that information-related activities play an important role as a means to establish collective understandings. However, whereas the information sharing studied by Pilerot contributes to consolidating an interdisciplinary field by establishing a shared core of literature and channels for mutual communication, the current thesis demonstrates a lack of reciprocity between information work and a process of stabilizing shared research practices.

The current thesis also demonstrates that the researchers who must make their unique inter-disciplinary manuscripts recognizable to multiple audiences become accountable to various epistemologies and regimes of competence. Palmer (2001) found that interdisciplinary 'shadow structures' or communities that span the local site of the interdisciplinary researchers' daily work develop when researchers share research problems and collaboratively create hydride domains. Similarly, Pilerot's (2013; 2015) interdisciplinary network of design researchers develops a trusting environment and a shared sense of belonging as well as a common history and a shared future trajectory, that also facilitates 'a winding up' of what it means to be a design researcher

(Pilerot, 2016). As opposed to such common grounds identified by Palmer and Pilerot, the researchers at the department lack intersubjective spaces for handling conflicting accountabilities and for developing a shared sense of what it means to be an interdisciplinary researcher.

The findings of the current thesis highlight the episodic nature of the participants' information work. In singular events of finding and connecting scholarly information, social networks, literature, past experiences, tools and materials come together in situation-specific combinations. As such, the events demonstrate aspects of Talja and Hansen's (2006, p. 129) model of information activities in work practices: activities such as seeking, interpreting, and filtering information are reciprocal, iterative and non-linear. The current thesis also ties in with Foster's (2004) similar indication that interdisciplinary information work is situational, dynamic and flowing. To a certain extent, the events exemplify Foster's (2004) non-linear model of interdisciplinary researchers' information seeking where activities – such as networking, browsing, chaining or skimming – form a palette of opportunities for the researcher. However, unlike Foster's (2004, p. 235) claim that the whole palette is accessible in the hand of the researcher at any moment, the current thesis demonstrate that what becomes available from a palette is not determined prior to the unfolding of the event. The palette in use is also dependent on the singularity of events, making their combinations and their outcome unpredictable.

The thesis offers insights into the episodic learning and innovation occurring in the here-and-now of doing research, where possible future trajectories for action and possible ways of being an interdisciplinary scholar become visible. Unlike new documentation practices that emerge through a "dance of agency" of parallel infrastructures in the archaeologic fieldwork studied by Huvila (2019), the events unfolding in the offices of the participants in the current study do not draw attention to a mutual process of innovating and learning a practice. Rather, when studied in their own right, events make visible the possibilities, learning and innovation born in individual research projects and that may be excluded from the process of making research shared and recognizable.

7.2 Methodological contributions

The current thesis combines two perspectives that bring different ontological assumptions to the study of the participants' information work. Whereas the practice-as-enacted perspective assumes elements of practices to be fairly stable in themselves but moving and changing as they are enacted and re-enacted through human activity, the practice-as-performed perspective does not start with

such presumed ontological categories. Practices, knowledge, information – these are all phenomena constantly in its becoming by the intra-activity of both human and non-human actors. By using both perspectives, the study brings to the fore different facets of interdisciplinary research as it unfolds specific to the settings of the participants' information work. If only one of the perspectives is applied, information that would become visible by virtue of the other is excluded. When using a practice-as-enacted perspective, observations are actively categorized as related to what is enacted in concert among the practitioners. This pushes towards interpreting that what does not conform to the enactment of practices are instances of failures or aberrations. By using the practice-as-performed perspective, attention is drawn to the singularity of situations and to instances that may deviate from what is enacted in concert. Using this perspective alone, however, would risk basing knowledge in myopic research that omits the wider contexts of the participants' individual projects.

A parallel methodological contribution of the thesis is the expanded consideration of my role in the construction of the object of study. In the practice-as-enacted perspective, research quality concerns production of valid representations of the studied researchers' shared realities, perspectives and interactions. The practice-as-performed perspective brings into view my interactions with actors and things, intra-actively co-producing practices, information and knowledge. The latter perspective invites reflections that exceed established procedures for reflexive research, but it also complicates research both methodically and ethically.

In practice research, one common piece of advice (Nicolini, 2017, p. 26; Pilerot et al, 2017) is to make sure that the research is conducted towards an internal coherence, meaning that assumptions about the realities studied (ontology), choices about how to make realities materialize (method) and the practice vocabulary one develops in dialogue with the studied field must adhere together. Information practice research developed as a particular programme within LIS, one in which information and information-related activities are studied from a social constructionist point of view, emphasizing actions and understandings as collectively situated (cf. Talja, 1997; cf. Lloyd; 2010; cf. Pilerot, 2015). As a situated approach to information in social, material and cultural contexts, the conceptual apparatuses developed within various information practice studies are sensitizing concepts entangled with the empirical cases. The twofold perspective I have developed and applied in the current thesis incorporates different ontological assumptions within one study.

I propose this as an approach that is particularly apt for studying the information work of researchers who produce research through unique mixes of disciplinary literature and epistemological frameworks and who do so within settings with few collectively shared practices.

7.3 Implications

The current thesis finds that dealing with contradictions in the efforts to make the unique interdisciplinary work recognizable to wider audiences is a major challenge to the participants in this study. The contradictions correspond at a practice level to the unresolved dilemmas inherent to the discourses of interdisciplinary research produced at political and institutional levels. On the one hand, stakeholders promote integration as the ideal of interdisciplinary knowledge production, making disciplinary research a mode of knowledge production researchers should move *beyond*, aiming at shared vocabularies and amalgamated methodologies. On the other hand, researchers are encouraged to develop and prosper as researchers *within* disciplines and to produce knowledge through interaction across boundaries. The participants in the current study continuously encounter disciplinary differences in vocabulary, epistemological frameworks and methodologies but without any unifying discourse or practice within which to deal with these differences. In the following, I point out three possible implications of such unresolved contradictions.

First, in the setting studied in this thesis, disciplines and disciplinary differences become an inevitable part of doing interdisciplinary research. A reproduction of a discourse that promotes the integration of disciplines, for instance concerning vocabulary and methods, can gloss over contradictions as experienced in the everyday-life of doing interdisciplinary research. For example, in a recent recommendation from the Research Council of Norway's International Advisory Board (Von Krogh et al, 2019), the authors stress a common language as "key" for researchers to engage in interdisciplinary knowledge creation. As opposed to the board's recommendation that measures taken in education, review systems or problem formulations should accommodate the integration of knowledge forms, the findings in the current thesis indicates instead a need for venues where researchers can openly discuss and prepare for disciplinary differences in concepts, methods, procedures and theories.

Second, the participants in the current study must handle accountabilities to competing regimes of competence. In a setting where there is a weak reciprocity between the researchers' information work and the development of shared research practices, there is a risk of privatizing researchers'

conflicting accountabilities. These includes reflections and learning that arise from the complexity of doing interdisciplinary research, which may lead to serious stress, in particular for unexperienced and early career researchers. Instead of leaving the responsibility for dealing with inconsistencies to the individual researchers alone, experiences, such as insecurities concerning expectations and norms and feelings of shame, should have forums in which they can be discussed openly, for instance in doctoral training, research schools or research project meetings.

Third, I, the LIS researcher, add to the mix of disciplinary differences and become part of the interdisciplinary research in its making when doing qualitative research with the participants in the study. As an LIS researcher, I co-produce opportunities for further action and reflection for the researchers in their work. This co-production parallels Ebeltoft and colleagues' (2018) finding that library support services are co-produced differently from one instance to the next through the mutual adjustment of multiple perspectives and practices – including librarians and library infrastructure. The current thesis supports their claim that libraries should demount their disciplinary organisation and re-orient their support services as laboratories for interdisciplinary research. However, in settings like those examined in the current study, where researchers deal with inconsistencies without stable, collectively shared practices, the library should acknowledge their potential of adding to the complexity and take initiatives that help build a shared pool of interdisciplinary experiences within this category of researchers. Bringing together PhD students and supervisors, or researchers who share experiences of being isolated when producing interdisciplinary work could be a step in this direction.

7.4 Limitations and future research

In this section, I indicate areas for future research. These areas are suggested not solely by the findings but also by the limitations of the current thesis.

The current thesis evolved over time from one thesis-article to the next. Article 1 prepared the ground for Article 2's privileging of practices over pre-configured communities or groups in its empirical analysis of citing practices in the interdisciplinary settings of the participants' information work. Next, Article 3 examined methodological implications of applying different practice ontologies to the study of information work and knowledge production unfolding during the data-collection in participants' offices. These iterative analyses resulted in the thesis' two-fold perspective of practice-as-enacted and practice-as-performed that constitute the thesis'

methodological contributions. However, this theoretically and methodologically oriented progress also resulted in the fact that I have exploited only parts of my rich empirical data material. Further analyses of the data might have given more insight into differences and similarities in citation practice between senior researchers and PhD students, a topic that now must be deferred to subsequent research.

In the thesis, I have examined a particular aspect of the participants' information work: work aimed at identifying and applying information to publishable manuscripts. The study involved methods that ensured various access points to the researchers' actions and reflections. Manuscripts, reviews, reference lists and search sessions made visible participants' interactions with other actors in the process, such as colleagues, reviewers or supervisors. In the practice-as-performed perspective, these encounters also made me a co-producer of data, information and knowledge. Nevertheless, the participants' information work also occurs in other arenas both within and outside the department. Researchers discuss literature and share information in seminars, conferences, courses and meetings (cf. Pilerot, 2016). An inclusion of interactions in such arenas would have brought further perspectives to the current study. This is an aspect that can be addressed in subsequent research.

The qualitative approach used generally implies a low empirical generalizability. In addition, this study was carried out with a selection of participants in only one department. Processes of making unique interdisciplinary manuscripts recognizable to wider audiences is likely not unique to this particular setting, and inclusion of comparative cases of interdisciplinary research would have increased the empirical validity. This would have been valuable, since less is done on individually unique research projects as situated in various kinds of interdisciplinary settings. Previous research on researchers' information-related activities has addressed mutual learning and stabilization of research practices in interdisciplinary teams (Haythornthwaite, 2006) and interdisciplinary networks (Pilerot, 2015). Future research could provide insights into how conflicting accountabilities and breakdowns in enactments occur, as well as how they are dealt with, in interdisciplinary settings where there is a stronger presence of mutual practices and notions of having a shared interdisciplinary field as compared to those found in the present study.

7.5 Concluding remarks

A closer look at performativity in practices has yielded enhanced insight into information work in emerging interdisciplinary research. By including a practice-as-performed perspective to the study, the singularity of events and the performative effects of intra-actions happening within them come into view. This adds to the previous approaches in the information practice research programme that has focused on information-related phenomena as situated in collectively enacted practices. This thesis' twofold perspective highlights different facets of practising research in settings where shared practices are weak and temporary. This methodological contribution of the thesis invites future research, not least so as to identify challenges and opportunities across other contexts where researchers' must make their unique research recognizable to various audiences.

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Appendix 1: Invitation letter/letter of consent PhD students

Forespørsel om deltakelse i forskningsprosjektet:
"Negotiated tensions of publication -
A study of information practices in PhD students' interdisciplinary research"

Bakgrunn og formål

Mitt navn er Eystein Gullbekk og jeg er ph.d.-student i "Program for biblioteks- og informasjonsfag" ved Høgskolen i Oslo og Akershus (HiOA). Mitt forskningsprosjekt handler om hvordan ph.d.-studenter og forskere som arbeider i tverrfaglige felt identifiserer, vurderer og velger litteraturreferanser som skal inngå i deres publiserte artikler. Det empiriske materialet vil bestå av kvalitative forskningsintervju med ph.d.-studenter og forskere og eventuelt deltagende observasjon i seminarer der artikkelutkast diskuteres.

Forskningen ved [insitusjonens navn] utgjør en svært relevant kontekst for denne studien som omhandler tverrfaglighet. Videre representerer ph.d.-programmet [navn på program] en særlig interessant tverrfaglig forskerutdanning. Jeg ønsker derfor å spørre deg som skriver en artikkelbasert avhandling innenfor dette programmet om du kunne tenke deg å være informant i mitt prosjekt?

Hva innebærer deltakelse i studien?

Det jeg konkret spør om er om du kan delta i følgende:

1) Kvalitative forskningsintervjuer (ca 1 times varighet) ved inntil tre tidspunkt i løpet av arbeidet du gjør med en av artiklene som skal inngå i avhandlingen din. Intervjuet vil bestå i en samtale med meg om dine artikkelutkast med vekt på de litteraturreferansene du bygger skrivingen på. Ett av intervjuene vil eventuelt kombineres med observasjon av en arbeidsøkt med søk i litteraturdatabaser. Intervjuene vil tas opp med lyd.
2) Eventuelt deltagelse i et gruppeintervju (ca 1 times varighet) der du sammen med andre ph.d.-studenter deltar i en samtale om erfaringer med artikkelpublisering.

Det tilbys ingen godtgjørelse for din deltagelse, annet enn den muligheten det gir for deg til å reflektere over en sentral del av arbeidet du gjør med din avhandling.

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt. Behandlingsansvarlig institusjon er HiOA, og det er kun undertegnede som får tilgang til direkte personidentifiserbare opplysninger. Disse vil lagres separat fra intervjumaterialet. Materialet vil inngå i min ph.d.-avhandling, og de

relaterte artikkelpublikasjonene. Personidentifiserbare opplysninger vil ikke framkomme i publikasjoner fra prosjektet.

Prosjektet skal etter planen avsluttes **31.12.2020** (jeg tar min ph.d.-utdanning i en 50% ordning ved siden av stilling ved Universitetsbiblioteket i Oslo). Ved prosjektslutt vil materialet anonymiseres.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn.
Dersom du ønsker å delta eller har spørsmål til studien, ta kontakt med **Eystein Gullbekk,** **eystein.gullbekk@ub.uio.no, tlf: 415 19 410**

Studien er meldt til [navn på godkjenningsmyndighet for forskningsetikk]

Samtykke til deltakelse i studien

Negotiated tensions of publication - A study of information practices in PhD students' interdisciplinary research

Jeg har mottatt informasjon om studien, og er villig til å delta (sett kryss foran de delene av studien du er villig til å delta i)

_____ Jeg kan delta i individuelle forskningsintervjuer

_____ Jeg kan delta i eventuelt gruppeintervju

(Signert av prosjektdeltaker, dato)

Appendix 2: Invitation letter/letter of consent senior researchers

Forespørsel om deltakelse i forskningsprosjektet

"Negotiated tensions of publication -
A study of information practices in PhD students' interdisciplinary research"

Bakgrunn og formål

Mitt navn er Eystein Gullbekk og jeg er ph.d.-student i "Program for biblioteks- og informasjonsfag" ved Høgskolen i Oslo og Akershus (HiOA). Mitt forskningsprosjekt handler om hvordan forskere og ph.d.-studenter som arbeider i tverrfaglige felt identifiserer, vurderer og velger litteraturreferanser som skal inngå i deres publiserte artikler. Det empiriske materialet vil bestå av kvalitative forskningsintervju med forskere og ph.d.-studenter, og eventuelt deltagende observasjon i seminarer der artikkelutkast diskuteres.

Forskningen ved [insitusjonens navn] utgjør en svært relevant kontekst for denne studien som omhandler tverrfaglighet, og ph.d.-programmet [navn på program] representerer en særlig interessant tverrfaglig forskerutdanning. Jeg ønsker å intervjue et utvalg forskere ved siden av et utvalg ph.d.-studenter. Derfor spør jeg deg som er publiserende forsker ved [insitusjonens navn] om du kunne tenke deg å være informant i mitt prosjekt?

Hva innebærer deltakelse i studien?

Det jeg konkret spør om er om du kan delta i følgende:
- Inntil to kvalitative forskningsintervjuer (ca 1 times varighet). Intervjuet vil bestå i en samtale om din artikkelskriving med vekt på de litteraturreferansene du bygger skrivingen på. Intervjuene vil tas opp med lyd.

Det tilbys ingen godtgjørelse for din deltagelse, annet enn den muligheten det gir for deg til å reflektere over en sentral del av arbeidet ditt.

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt. Behandlingsansvarlig institusjon er HiOA, og det er kun undertegnede som får tilgang til direkte personidentifiserbare opplysninger. Disse vil lagres separat fra intervjumaterialet og anonymiseres etter transkripsjon. Materialet vil inngå i min ph.d.-avhandling, og de relaterte artikkelpublikasjonene. Personidentifiserbare opplysninger vil ikke framkomme i avhandlingen eller i publikasjoner fra prosjektet.

Prosjektet skal etter planen avsluttes **31.12.2020** (jeg tar min ph.d.-utdanning i en 50% ordning ved siden av stilling ved Universitetsbiblioteket i Oslo). Ved prosjektslutt vil materialet anonymiseres.

Frivillig deltakelse

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn.

Dersom du ønsker å delta eller har spørsmål til studien, ta kontakt med **Eystein Gullbekk,** eystein.gullbekk@ub.uio.no**, tlf: 415 19 410**

Studien er meldt til [navn på godkjenningsmyndighet for forskningsetikk]

Samtykke til deltakelse i studien

”Negotiated tensions of publication - A study of information practices in PhD students' interdisciplinary research”

Jeg har mottatt informasjon om studien, og er villig til å delta.

(Signert av prosjektdeltaker, dato)

Appendix 3: Interview guide, first interview, phd students

Tema	Sjekkliste
1. Innledning/ Velkommen	- Takke for deltagelse - Opplyse om o prosjektets formål o intervjuets temaer o lydopptak, personvern, samtykke, anonymisering, databehandling og publisering fra prosjektet
2. Faglig bakgrunn og tilhørighet	- Kan du gi meg en kort beskrivelse av **ditt forskningsprosjekt**? - Hva er din **faglige bakgrunn**? Fra utdanning og eventuelt fra praksis? - Hvordan vil du i dag beskrive **din faglige identitet**? (F.eks: x x x) Hvilke deler av faget identifiserer du deg med/identifiserer du deg ikke med? Hvorfor/hvorfor ikke? - Har dette endret seg over tid synes du? Hvorfor? - **Hvilke personer, miljøer eller nettverk** opplever du som faglig viktig for deg i ditt prosjekt? Hva er det som gjør disse viktige? Hvilke fag eller forskningsfelt hører de til? - Hvilken faglige bakgrunn har din(e) **veileder**(e)? Hvordan **stemmer den overens** med din egen bakgrunn? - Hvorfor valgt PhD her?
3. Om artikkelbasert ph.d.-avhandling	- **Hvorfor** har du valgt **artikkelbasert** avhandling som format?

	- Hvilke **forventninger stilles** når vi skal skrive artikler som del av PhD-avhandlingen? Hva er hensikten? Hvorfor ikke skrive monografi? Hvordan uttrykkes disse lokalt?
	- Har du **erfaring** med å skrive for å publisere? Kan du evt. beskrive denne erfaringen? Hva er annerledes nå? Hva framstår eventuelt som uklart med tanke på publiseringsprosessen du nå skal inn i?
4. Om arbeidet med artikkelen informanten for øyeblikket skriver eller planlegger å skrive	- Kan du beskrive kort hva du skriver om i **den aktuelle artikkelen**?
	- Er du eneforfatter eller medforfatter?
	- Er det noen aspekter i det aktuelle artikkelarbeidet du er spesielt engasjert i? Hvorfor det?
	- Kan du beskrive noen **viktige hendelser** i arbeidet med artikkelen så langt? Noe som kanskje har betydning for valg av perspektiv, tema eller vinklinger? Hvorfor har dette vært viktig? Noen **kriser**? Har litteratur hatt betydning i disse hendelsene?
	- Kan du beskrive **særskilte utfordringer** i arbeidet med artikkelen? Hva synes du er vanskelig? Hvorfor er det det?
	- I **hvilke sammenhenger har du presentert arbeidet** ditt med denne artikkelen? (Veileder. Seminarer. Konferanser. Kollokvier.). Hva slags **tilbakemeldinger** fikk du? Hvordan var de å forholde seg til? (Nyttige, vanskelige, irrelevante. Hvorfor opplevde du det slik?)
	- Kan du beskrive hvem du skriver for/hvem du ser for deg som **leseren din**? Er dette alltid det samme, eller varierer det? Hvorfor?
	- Der du er i skrivingen nå, hvordan vil du beskrive **din målsetting** for artikkelen? (for eksempel om å gjøre å

	få den utgitt, være nyskapende, bidra med nytte til praksisfeltet….). Hva er grunnene til dette? - Hvordan ser **publiseringsprosessen du må forholde deg til** ut? Hvem er involvert? Hvilken rolle spiller de ulike aktørene? Er det **spesielle fagtradisjoner** du må følge? Genrekrav?
5. Kartlegging av litteratur og/eller annen faglig informasjon	- Hvilke **krav stilles til kartlegging av litteratur** til artikkelen? Hvem stiller disse kravene? - **Hvordan finner du fram** til relevant litteratur? Kan du beskrive for meg hvordan du er kommet fram til litteratur som du akkurat nå bygger på i skrivingen din? Hvorfor jobber du på akkurat denne måten? Tidsskrifter eller forlag som er spesielt viktige? - Vi var inne på **sammenhenger** du diskuterer det faglige arbeidet ditt i. **Hvilke er viktigst/minst viktigst** for deg med tanke på litteraturen du tar i bruk? og hvorfor? - Er det **andre personer eller nettverk** som har gitt deg gode pekere til aktuell litteratur? - Bruker du **søkeverktøy**? Hvilke? Hvorfor bruker du akkurat disse? - Hvordan vil du si at du har **lært framgangsmåter** for å finne fram til litteraturen? Av **hvem** har du lært? Veileder, medstudenter, biblioteket eller andre? - Har du **tilgang** på den litteraturen du trenger? Hvorfor, hvorfor ikke?

6. Vurdering og bruk av referanser/litteratur	- Hva er avgjørende for at du **velger å referere** til et bestemt arbeid (bok/artikkel/rapport eller annet)? Tidsskrift/forfatternavn/Impact factor, annet? Hvorfor er dette viktig? - Endrer dette seg i ulike situasjoner? - Er det litteraturreferanser du **ikke kan vise til** i artikkelen? Hvorfor er det (/ikke) slik? - Er det litteraturreferanser **du bør eller må vise til** i artikkelen? Hvorfor er det (/ikke) slik? Hvem eller hva er det som bestemmer dette? - Har du opplevd eller tenkt at det er litteratur du gjerne skulle bygget på, men så har du følt at det ikke er **legitimt**?
7. Valg av publiseringskanal/tids-skrift	- Hvordan **finner du fram til publiseringskanal** for artikkelen din? - Har du tenkt på **hvor** du skal sende artikkelen din? - Hvilke **kriterier** er viktige ta hensyn til nå du skal velge publiseringskanal? - Er det lett eller vanskelig **å velge** hvor man skal sende artikkelen? Hvorfor er det slik?
8. Oppfølging og veiledning	- Er publisering et **tema i ph.d.-utdanningen** din? Eventuelt på hvilken måte? - Får du veiledning eller undervisning som adresserer publiseringsspørsmål? Hva har denne eventuelt bestått i? - Er du **fornøyd med oppfølgingen** med tanke på publisering? Hvorfor/hvorfor ikke?

9. Tverrfaglighet	- Tverrfaglighet finnes det ingen absolutt definisjon av. Hva vil du si det er som **definerer** om et forskningsfelt eller et utdanningsløp er tverrfaglig?
	- Vil du beskrive **ditt forskningsfelt** som tverrfaglig? På hvilken måte?/Hvorfor ikke?
	- Vil du beskrive «**xxx** » som et klart definert fagfelt? Er det tverrfaglig? Eventuelt på hvilken måte?
	- Hva kjennetegner eventuelt en **tverrfaglig publikasjon**?
	- Blir **din artikkel tverrfaglig**? Hva gjør den tverrfaglig?
10. Avslutning	- Oppsummere temaene
	- Noe du vil tilføye?

Appendix 4: Interview guide, first interview, senior researchers

Tema	Sjekkliste

1. Innledning/ Velkommen	- Takke for deltagelse
	
	- Opplyse om
	
	    ○ prosjektets formål
	
	    ○ intervjuets temaer
	
	    ○ lydopptak, personvern, samtykke, anonymisering, databehandling og publisering fra prosjektet

2. Faglig bakgrunn og tilhørighet	- Kan du gi meg en kort beskrivelse av **ditt forskningsfelt**? - Hva er din **faglige bakgrunn**? Fra utdanning og fra praksis? - Hvordan vil du i dag beskrive **din faglige identitet**? (F.eks: x x x?) Hvilke deler av faget identifiserer du deg med/identifiserer du deg ikke med? Hvorfor/hvorfor ikke? - Har dette **endret seg over tid synes du**? Hvorfor? - **Hvilke personer, miljøer eller nettverk** opplever du som faglig viktig for deg i din forskning? Hva er det som gjør disse viktige? Hvilke fag eller forskningsfelt hører de til?
3. Om pågående skrive-arbeid	- Kan du beskrive for meg dine erfaringer med tverrfaglig forskning? - **Hvilke genre** skriver du innenfor når du skriver for å publisere? (artikler, monografi, antologi, paper for proceedings etc) - Hvordan vil du beskrive **forskjeller i utfordringer** ved de ulike genrene? **Se på artiklene/bokkapitler**

		- Kan du beskrive kort hva du skrev om i disse seneste artiklene
		- Kan du **beskrive særskilte utfordringer** i artikkelskrivingen? Hva synes du er mest utfordrende? Hvorfor er det det?
		- Formelle utfrodringer: Er det spesielle **fagtradisjoner du må følge**? Genrekrav? Forskjeller og likheter mellom feltene? Mellom tidsskriftene?
		- Kan du beskrive noen **viktige hendelser** i arbeidet med de siste artiklene? Noe som kanskje har hatt betydning for valg av perspektiv, tema eller vinklinger? **Hvorfor** har dette vært viktig? Noen **kriser**? Har **litteratur** hatt betydning i disse hendelsene?
		- I **hvilke sammenhenger har du presentert arbeidet** ditt med artiklene? (Kolleger. Seminarer. Konferanser. Sosiale medier?). Hva slags **tilbakemeldinger** fikk du? **Hvordan var de å forholde seg til**? (Nyttige, vanskelige, irrelevante. Hvorfor opplevde du det slik?)
		- Hvordan har evt **samarbeidet med medforfattere** vært organisert? Utfordringer? Hvordan samarbeider dere om de ulike stegene i prosessen? (Litteraturgjennomgang, Skriveprosessen, revisjon etter review etc.)
		- Har du og dine medforfattere **samme faglige bakgrunn?** Hvordan fungerer dette? Fordeler og ulemper?
		- Kan du beskrive hvem du skriver for/hvem du ser for deg som **leseren din**? Er dette alltid det samme, eller varierer det? Hvorfor?
		- Der du er i skrivingen nå, hvordan vil du beskrive **din målsetting** for skrivingen? (for eksempel om å gjøre å få den utgitt, være nyskapende, bidra med nytte til praksisfeltet….). Hva er grunnene til dette? Varierer disse målsettingene?
		- **Selv om du er erfaren:** Er det ting som gjør deg **usikker** i publiseringsprosessene?
	4. Kartlegging av litteratur og/eller	- **Hvordan finner du fram** til relevant litteratur? Kan du beskrive for meg hvordan du er kommet fram til litteratur som du akkurat nå bygger på i skrivingen din? Hvorfor jobber du på

	annen faglig informasjon	akkurat denne måten? Tidsskrifter eller forlag som er spesielt viktige? - Vi var inne på **sammenhenger** du diskuterer det faglige arbeidet ditt i. **Hvilke er viktigst/minst viktigst** for deg med tanke på litteraturen du tar i bruk? og hvorfor? - Er det **andre personer eller nettverk** som har gitt deg gode pekere til aktuell litteratur? - Bruker du **søkeverktøy**? Hvilke? Hvorfor bruker du akkurat disse? - (Hvilke **krav stilles til kartlegging av litteratur** til artikler i ditt felt? Hvem stiller disse kravene?)
5.	Vurdering og bruk av referanser/li tteratur	- Hva slags litteratur ser du etter i ditt pågående arbeid? - Hva er avgjørende for at du **velger å referere** til et bestemt arbeid (bok/artikkel/rapport eller annet)? Tidsskrift/forfatternavn/Impact factor, annet? Hvorfor er dette viktig? - Endrer dette seg i **ulike situasjoner**? - Er det litteraturreferanser du **ikke kan vise til** i artikkelen? Hvorfor er det (/ikke) slik? - Er det litteraturreferanser **du bør eller må vise til** i artikkelen? Hvorfor er det (/ikke) slik? Hvem eller hva er det som bestemmer dette? - Har du opplevd eller tenkt at det er litteratur du gjerne skulle bygget på, men så har du følt at det ikke er **legitimt**?
6.	Valg av publiserings kanal/tids-skrift	- Hvordan **finner du fram til publiseringskanal** for artikkelen din? - Hvilke **kriterier** er viktige ta hensyn til nå du skal velge publiseringskanal?

		- Hvorfor har du publisert i de tidsskriftene du har publisert i?
		- Noen tidsskrifter som er viktige for [institusjonen]?
		- Hvordan ser **publiseringsprosessene du må forholde deg til** ut? Hvem er involvert? Hvilken rolle spiller de ulike aktørene?
7. Om Ph.d.-studentene		- Hvilke **utfordringer opplever du at ph.d.-kandidatene har** med skrivingen sin?
8. Tverrfaglig-het		- Tverrfaglighet finnes det ingen absolutt definisjon av. Hva vil du si det er som **definerer** om et forskningsfelt eller et utdanningsløp er tverrfaglig?
		- Vil du beskrive **ditt/dine forskningsfelt** som tverrfaglig? På hvilken måte?/Hvorfor ikke?
		- Vil du beskrive «xxx» som et klart definert fagfelt? Er det tverrfaglig? Eventuelt på hvilken måte?
		- Hva kjennetegner eventuelt en **tverrfaglig publikasjon**?
		- Er **dine artikler tverrfaglige**? Hva gjør dem tverrfaglige?
9. Avslutning		- Oppsummere temaene
		- Noe du vil tilføye?

Appendix 5: Interview guide, second interviews (example)

Intro	- Hva har skjedd siden sist? Hvordan har skriveprosessen vært? - Feedback underveis: fra hvem? Hvor? Mest viktig, minst viktig? - Kan du beskrive noen særlige utfordringer, kriser eller oppturer? - Har du opplevd uenigheter rundt teksten? Med hvem? - Du sa sist at du ikke har noe faglig nettverk? Har dette endret seg?
References	Snakk meg gjennom referansene du har brukt - Funksjon: Hva gjør disse referanse for deg? - Var det noen du måtte putte der? - Noen du gjerne skulle hatt der, men som du har måttet utelate? Hvorfor? - Hvilket tidsskrift skal du sende til? Hvordan har du kommet fram til det? Kriterier?

Talk aloud	Instruksjoner
	
	- Hva skriver du på for øyeblikket?
	- Kan du formulere en målsetting for et litteratursøk relater til det du skriver på før øyeblikket.
	- Velg et eller flere verktøy som du vanligvis bruker
	- Stopp når som helst du føler du har oppnådd noe med søket ditt
	- Tenk høyt: Fortell meg hva du tenker: Hva gjør du, hva tenker du om referansene du kommer over? (Relevans / irrelevans)
	
	Etter søkeøkten:
	
	- Hvorfor fanget visse referanser oppmerksomheten din?
	- Hvorfor valgte du å følge opp disse referansene?
	   o Navn?
	   o Kjente kilder/forlag/tidsskrifter?
	   o Begreper/metoder/teorier?
	   o Andre grunner?
	- Hvorfor utelot du å følge opp visse andre referanser?
	- Hvorfor valgte du å bruke de verktøyene du valgte?
	- Hvilke funksjonaliteter benyttet du? Hvorfor?

	- Hvordan vil du beskrive denne søkeøkten sammelignet med hvordan du vanligvis ser etter litteratur? Kommer du over litteratur på andre måter? - Er dette slik du vanligvis reflekterer? Forskjeller eller likheter? - Er det andre verktøy du bruker

Appendix 6: Interview guide, third interviews (example)

Guide 3	

Siden forrige versjon Reviewene	• Hva har du gjort med artikkelen siden sist vi traff hverandre? (se på artikkelen)
	
	 • Hvilke utfordringer opplevde du/dere i arbeidet med teksten fram til siste «submission»?
	
	 • Hvordan løste du eventuelt disse?
	
	 • Hvordan har du forstått reviewene? Viktige/mindre viktige kommentarer? Forståelige/mindre forståelige kommentarer
	
	 • Hvem har du diskutert reviewene med?
	    o Noen innspill du tenker er mer betydningsfulle enn andre?
	    o Var det noen uenigheter?
	    o Hvordan løste dere eventuelt dette?
	
	 • Hvilke endringer gjorde du?
	
	 • Innebærer dette endringer i litteraturen du bygger på. Hvilke? Hvorfor/hvorfor ikke?
	
	 • Har du brukt ulike fagfelt? Hvilke er evt viktigst?
	
	 • Har du måttet ta hensyn til syn som bygger på ulike fagtradisjoner? Hvordan har du løst dette?
	
	 Spesifikke spørsmål til fagfellevurderingene fra tidsskriftet:

- «Kna litteraturgjennomgangen av de to feltene» (navn på felt 1 og 2) sammen til et selvstendig og mer lesverdig bidrag». Hvordan tolket du dette? Hva gjorde du med det? Hva var eventuelt utfordrende?

- Du var opptatt av å forankre i [navn på fag], eksempelvis gjennom å bruke [navn på forfatter]. Har dine tanker om dette endret seg?

- «Skriver for [navn på fagfelt].» Tenker du fortsatt slik?

- Er du enig i konkrete påstander? F.eks «[navn på forfatter] som standardreferanse til [navn tema/problematikk]?

- Hvordan tenker du om innspillet om [spesifikt begrep]? Er dette et begrep som gir mening for deg? Hvordan/eventuelt hvorfor ikke?
  - Fikk kommentaren betydning for din revisjon? Hvorfor/hvorfor ikke

- Hva har du gjort med de konkrete referansetipsene til reviewer 2?

- Hvordan gikk oppdateringen etter [navn på literaturreferanse]
- Hva har du vektlagt i tilsvaret til redaktøren?

- Hva har du lært som du tar med i arbeidet med neste artikkel?

Article 1

Gullbekk, E. (2016). Apt information literacy? A case of interdisciplinary scholarly communication. *Journal of Documentation*. *72*(4), 716-736.

DOI: **https://doi.org/10.1108/JDOC-08-2015-0101**

Article 2

Gullbekk, E. & Byström, K. (2019). Becoming a scholar by publication – PhD students citing in interdisciplinary argumentation. *Journal of Documentation*. *75*(2), 247-269.
DOI: **https://doi.org/10.1108/JD-06-2018-0101**
[Article not attached due to copyright]

Article 3

Gullbekk, E. (2019). What can we make of our interview data? From interdisciplinary to intra-disciplinary research. *Information Research, 24*(2). http://InformationR.net/ir/24-4/colis/colis1934.html

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- [Contents](#) |
- [Author index](#) |
- [Subject index](#) |
- [Search](#) |
- [Home](#)

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What can we make of our interview data? From interdisciplinary to intra-disciplinary research

Eystein Gullbekk

Introduction. This paper considers materially enriched interview data through practice lenses and explores how performativity in practices is accentuated in the data. Particular emphasis is placed on the kinds of knowledge that are justified by the data.
Method and analysis. The paper distinguishes between element-based and post-humanist practice lenses. The distinction is exemplified by an analysis of two interview abstracts from a study on literature searching among interdisciplinary scholars.
Results. Depending on the lenses applied, materially enriched interviews produce different epistemic objects, enabling different kinds of research results. The element-based lenses are attuned to practices as ordered products, indicating that interviews re-enact practices. The data justifies knowledge about dynamics inter disciplines or inter scholars. A post-humanist lens views practices as a mode of ordering, where interviews (and the data produced) become a part of an intra-disciplinary becoming through the intra-acting of human and non-human agencies alike.
Conclusions. The element-based lenses indicate that interviews inform about performances happening in situ elsewhere, whereas the post-humanist lens views the interviewing researcher as part of practices-in-their-making. This entails a shift from a concern about researcher reflexivity and valid representations, towards an awareness of researchers' responsibilities in the joint performance of the phenomenon studied.

Introduction

The body of literature that addresses information-related activities through a practice lens has grown large during the past decade. While the authors lend an ear to different practice theories (e.g. [Bourdieu, 1977](#); [Giddens, 1984](#); [Reckwitz, 2002](#); [Schatzki, 2002](#); [Wenger, 1998](#)), they generally understand practices as socio-materially regulated performances. Practice-based information behaviour researchers highlight information-related activities as embodied and corporeal ([Lloyd, 2010](#); [Veinot, 2007](#)), as materially mediated (Pilerot, 2014), as routinized ([Schreiber, 2014](#)) and as discursive ([Schreiber, 2014](#); [Sakai, Awamura and Ikeya 2012](#)). A critical potential of applying a practice lens is that it enables us to analyse information-related activities as complex ongoing relational accomplishments within and across a variety of settings ([Irvine-Smith, 2017](#); cf. [Halkier & Jensen, 2011](#); [Gullbekk, 2016](#)). A number of the studies include qualitative interviews as a source of data (e.g. [Schreiber, 2014](#); [Nordsteien, 2017](#); [Gullbekk and Byström, 2019](#); [Lloyd, 2007](#); [Pilerot, 2013](#)). Nevertheless, the attention to situated sayings and doings, to activity and to matter poses a challenge to the idea that data produced linguistically within the interview can inform us about practices performed elsewhere.

Researchers who apply a practice lens are advised to combine interviews with other methods such as direct observation, multi-sited ethnography and document analysis ([Pilerot, Hammarfelt and Moring, 2017](#);[Thomson, 2018](#); [Niccolini, 2009](#); [Schatzki, 2012](#)). Some use interviews as 'part of ethnography writ large' ([Shatzki, 2012](#), p. 25) and see them as partial access points to articulable aspects of practices ([Pilerot, Hammarfelt and Moring, 2017](#); [Martens, 2012](#)). Others propose materially enriched or hybrid interviews. Examples are visual elicited talk (Hicks and Lloyd, 2018), interviews to the double ([Bruni and Gherardi, 2001](#); [Niccolini, 2009](#)) or guided tours ([Thomson, 2018](#)). In guided tours interviewees *'lead the researcher through the location* […] *while describing and explaining its features* […]' ([Thomson, 2018](#), p. 515) . These propositions follow a set of ontological and methodological commitments (cf. [Nicolini and Monterio, 2016](#)). They seek to reconcile a naturalistic research paradigm ([Lincoln and Guba, 1985](#)) that *'emphasizes rich depictions of the behaviours, perspectives, and feelings of individuals in situ, in*

natural settings' (Thomson, 2018, p. 528) with considerations of the interview practice as *'a representational activity and vocabulary'* (Nicolini and Monteiro, 2016, p. 114). In this paper, however, I pursue the claim that practices and their performativity challenge the idea that interview data represent practices *out there* (cf. McLure, 2013; 2015). I explore two different approaches regarding what we access by interview data. Is interviewing itself a social practice that can represent something out there; or are interviews situations that are part of practices running across the socio-material building of the interview setting itself? How can these different approaches assist the critical potential of using a practice lens in a study of literature searching in interdisciplinary settings?

The first approach posits that interviews make accessible at least some elements of the practices we study. This approach calls for a reflexive methodology emphasising *which* practice-elements are suited for articulation and representation (cf. Martens, 2012). To ensure validity in the ways we foreground performativity in the everyday activities of participants, we must make explicit the researcher's role in the joint articulation of practice elements within interview situations (cf. Nicolini, 2009, p. 199). The second approach posits that methods, interviews included, can never represent realities out there (McLure, 2013; Barad, 2003; Kuntz & Presnall, 2012). Methods are knowledge practices and are themselves performative (Law; 2009; Barad, 2007; Orlikowski and Scott, 2015, Kuntz and Presnall, 2012), meaning that interview data emerge through humans, materiality and discourses entangled. Researchers become co-producers of the phenomena under study.

A consideration of the methodological differences in how performativity is accentuated through interviews is particularly relevant to studies on interdisciplinary scholarship. In this paper, I view interdisciplinarity as an emergent and open-ended phenomenon. One dominant position in the literature on interdisciplinarity assumes interdisciplinary research to be a complex of activities whereby disciplinary differences among participants become subsumed by *'an integrated framework with a common vocabulary'* (Klein, 2005, pp. 43–44 in Holbrook, 2013, p. 1870), i.e. as something that negates disciplinarity (Madsen, 2018). As opposed to this integration thesis, I view interdisciplinarity as a discipline-inclusive mode of knowledge production (Madsen, 2018) within which both disciplinary and interdisciplinary *'boundaries and practices are continuously in flux'* (Frickel et al., 2016, p. 8 in Madsen, 2018, p. 466.) As will become evident, I (a scholar interviewing scholars about information-related activities), easily add further complexity to this flux.

In this paper, I discuss two interview-abstracts from a study on literature searching among interdisciplinary scholars. These interviews were materially enriched. They were carried out within the office spaces of the interviewees and included interactions with material arrangements such as manuscript drafts, databases, personal computers and bookshelves filled with literature. I put the two approaches presented above to work in an analysis of the abstracts by pursuing the following questions:

1. How do data produced through the materially enriched interviews accentuate the performativity of practices about which we seek knowledge?
2. What can we make of the interview data in terms of articulating knowledge about interdisciplinary information practices?

In what follows I present the two approaches to interviewing in terms of two different practice lenses. I then describe the interview situation to which the interview abstracts belong. Next, I provide an analysis of the abstracts. First, I look at differences between lenses regarding kinds of knowledge justified by the data produced. Second, I look at difference in how I as a researcher become part of the data produced. Finally, I present a concluding discussion.

Interviews and performativity

Silverman (2013, p. 50) claims that qualitative researchers tend to treat interview data *'as a simple window on experiences'* by which they mine out authentic perceptions, attitudes, and experiences of individuals. He thus describes an attitude towards data that we may refer to as representationalism (Barad, 2003; Kuntz & Presnall, 2012). This attitude depends on a series of dualisms. It separates an inside (experiencing and acting members of social worlds) from an outside, (observing and interpreting researchers detached from social worlds under scrutiny) (Kuntz & Presnall, 2012, p. 734). The attitude also distinguishes discourses from discourse-supporting material practices (Barad, 2003, p 820). The different practice lenses discussed below, and the way they deal with performativity, constitute different responses to these dualisms.

Performativity denotes acts and processes by which *'apparently stable phenomena have been constituted or deconstituted'* (Butler, 2010, p. 147). In terms of practices, we look at how phenomena emerge, change or dissolve as relational accomplishments (Halkier and Jensen, 2011). Methodologically, relational accomplishments are differently articulated across lenses. In what follows, I build on Gherardi's (in press, p. 1-2) distinction between element-based practice lenses that stress practices as empirical phenomena and as ordered products, i.e. as ontologically prior to interactions, and a post-humanist lens that view practices as a mode of ordering, i.e. as an epistemology.

Proponents of element-based practice lenses direct attention not so much to the performativity of the interview practice itself, as they do to the objects of our studies (e.g. Nicolini, 2009; Martens, 2012; Halkier and Jensen, 2011). They foreground the performative character of the everyday social life about which we seek knowledge. They share an interest in studying how activities are configured by the interconnected dynamics between elements such as procedures, understandings and engagements (Warde, 2005), competencies, meanings and materials (Shove, Pantzar and Wilson, 2012) or understandings, rules, teleoaffective structures and material arrangements (Schatzki, 2002).

Methodological considerations, from within an element-based practice lens, address the reach of interview data in the study of these configurations. When we study practices, we seek insights about phenomena not necessarily linguistically available to us. The question becomes whether practices are observable via interview talk or not. One scholar who articulates this problem is

Martens ([2012](#)). Her argument is that interview talk both *'form a **resource** and an **obstruction** when we want to think about mundane practices in scholarly ways'* (para. 1.4, emphasis in original). The interview encourages what Martens calls performance-related silences. Concepts related to activities (sayings and doings) and to materiality that belongs to the practices we intend to study only become vaguely articulated by interviewees. However, elements that belong to practices' organization, such as engagements or understandings, do occur as tellable talk in interviews, because interlocutors typically negotiate understandings and rules. Hence, interview data can inform an analysis of practices as ongoing relational accomplishment, but only as representations that provide an indirect window through the normative organizations of practices. This methodological consideration deals with the problem of representation across the interview practice and practices studied. It separates between an inside and an outside of interviews, and between materiality and discourse. Performativity translates to a discussion of limitations set by language or by the interactivity between sayings and further practice elements and materiality.

A post-humanist lens operates according to different assumptions (cf. [Gherardi, in press](#); [Orlikowski and Scott, 2015](#)). Performativity in practices, including interviewing, is addressed *'as emergently relational ways of knowing'* ([Kuntz and Presnall, 2012](#), p. 741). The lens is informed by Barad's ([2007](#)) agential realism and by her material-discursive notion of performativity. According to Barad ([2007](#)), phenomena are intra-active becoming, where intra-action *'signifies the mutual constitution of entangled agencies'* ([Barad, 2007](#), p. 33). This implies that distinct agencies, e.g. interviewer and interviewee, *'do not precede, but rather emerge through, their intra-action'* ([Barad, 2007](#), p. 33). Phenomena, e.g. interdisciplinary literature searching, are produced through intra-actions. The production of phenomena through intra-actions and participants' knowledge about phenomena are not separable. Furthermore, Barad also states that matter does matter in the unfolding of intra-active becoming, thus, she stresses that materiality and discourse are not separate entities. Barad ([2007](#), p. 151) explains that matter is not *'a fixed support, location, referent or source of sustainability for discourse'*. A practice, e.g. interviewing, is constituted through entangled discourse-matter because 'neither is articulated/articulable in the absence of the other; matter and meaning are mutually articulated' ([Barad, 2003](#), p. 822).

A focus on the materialization of discourse, rather than on a mutual support of meaning between discourse and matter, entails attention to *'how discourse is materially enacted in practice'* ([Introna, 2011 in Orlikowski and Scott, 2015](#), p. 700). In the context of this paper, the discussion is not about how the interaction between interviewer and interviewee can be analysed as a discursive practice that invests search tools, texts, citations, databases or even our bodily presences with meaning. Nor are they elements that organize, facilitate or mediate action. Rather, focus is on how they all take part in producing a phenomenon through intra-acting. Following Barad ([2003](#), p. 816, emphasis in original>), methodological instruments, e.g. interviews, are not mere instruments for collecting data. They are ***'dynamic (re)configurings of the world, specific agential practices/intra-actions/performances through which specific exclusionary boundaries are enacted'.*** When we think of the interview this way, it becomes an open-ended practice, an ongoing intra-activity of reconfigurations.

The interview situation

The interview abstracts discussed in this paper come from a series of interviews belonging to a study on information-related activities in interdisciplinary research. (See also [Gullbekk and Byström, 2019.](#)) I conducted these interviews with scholars who work in a department located at a Scandinavian tertiary institution. The department describes its research groups as exceeding disciplinary boundaries, and as exploring their topics through diverse methodologies and theoretical perspectives. Group members come with a broad range of disciplinary backgrounds including education, the humanities, social sciences and health sciences. Equally, I, the interviewer, come with a background in sociology, information research and professional experience as an academic librarian.

I informed potential participants that the study was part of a project within information research, and that I was interested in how scholars who publish research conducted in interdisciplinary settings identify, evaluate, and apply citations throughout the process of writing for publication. I recruited 14 PhD students and senior researchers. I interviewed them individually two or three times in their office spaces over a period of 6-18 months. The abstracts presented in this paper are from interviews with seniors. All personal details that would risk the anonymity of the participants are modified, including names and affiliations.

The interview guide included questions about interviewees' disciplinary, educational or professional background, fields they drew upon in their current writing and their interactions with colleagues and co-authors. The interviews also included conversations about the reference lists of their most current publications, conversations about received peer-reviews, and a talk-aloud search session. The location chosen for the interviews was one where the interviewees assumedly regularly engage with the information activities under scrutiny. By including the practical task of literature searching in our conversations, I intended to elicit talk that made available for analysis their understandings and interpretations of tools, works, authors and disciplines. I asked the participating scholars to define a need or a goal that would guide their search, preferably something for what they currently were working on. The participants explained their steps while searching. They were free to choose where to start looking, and as a result, the search sessions took a variety of routes.

The interviews shifted between *sitting* and *tactile* situations. In the sitting situations, the interviewees and I sat opposite from each other and conversation dominated our interaction. In the tactile situations, most clearly manifested in the talk-aloud search sessions, tools, texts, physical space and movement became central to the interview. Initially, I assumed it practically difficult to observe doings in the unfolding of information practices, as these doings occur at unpredictable moments and in unpredictable places. I was inspired by the argument that interviews gain value if they prompt re-enactments or talk about articulable elements of the practice under scrutiny ([Nicolini, 2009](#); [Martens, 2012](#)). Motivated by an element-based practice lens, I wanted to make

accessible the interpretations of how to do, principles for what to do, and *'emotional and normative orientations related to what and how to do'* ([Halkier and Jensen, 2011](#), p. 104).

It occurred to me however that in the tactile situations, more than the articulable elements gained analytical value. I here use the term tactile similar to the way Kuntz and Presnall ([2012](#)) describe the tactical in their *wandering interviews* with teachers. In these interviews, conversation is carried out while walking together both inside and outside of the school buildings. They describe these interviews as a material wandering in which the materiality of space and bodies prompt the expression also of that which an element-based practice lens leaves as performance-related silences. Kuntz and Presnall ([2012](#), p. 733) explicate the interview as

> […] the movement of bodies through space, in time, the negotiation of paths and unforeseen interruptions – and this material wandering encourages the metaphorical wandering of thoughts, the expression of affect, such that what may not find proper expression in the visible-strategic, finds voice.

From knowing-in-practice to becoming-with-knowing

When I asked the participants to tell me about how they find relevant literature, most participants described systematic processes based on more or less clear principles. Mary, for example, explained how she uses a form she received during a library course. She gave me details about how she filled it out as her search progressed. The form helped her to keep track of the results of specific search terms across different disciplinary and comprehensive databases. In a similar vein, Thomas reported that he starts his searching by using an indexing tool that *'is comprehensive like Google Scholar'*, one that *'doesn't, sort of narrow you into a box of disciplinary identity'*. He admits, *'I don't use a particular strategy that's very sophisticated, that's for sure. I used to. During my PhD I had Endnote […] I was totally disciplined on filing everything in to Endnote'*. However, he usually includes an account of his literature searches in the literature review section of his manuscripts.

In these situations, I encouraged the participants to talk freely about how they went about finding literature. Similar to what Martens ([2012](#)) observed in her study on kitchen practices, the participants translate this as an invitation to convey what is important to them regarding interdisciplinary literature searching (e.g. *not narrowing down your disciplinary identity or keeping standards of systematics across disciplinary databases*). The participants construct their narratives around rules and understandings associated with correct ways of mapping literature. Instead of giving accounts of what they actually do, they state principles showing that they certainly know how literature searches should be done, namely according to some systematic procedures. Martens ([2012](#)) points out that the activity that unfolds in the interview is the activity of conversation belonging to the interview practice. According to her argument, the understanding- and rule-elements of the literature-search-practice make this practice available for interview talk. In terms of material and activity components of the practice, the interview is only '[…] *exhibiting a limited set of unambiguous practice-implying do and materiality concepts* […]' ([Martens, 2012, para. 5.1](#)). In the examples above these would be *filing* or *fill out* and *databases*, *form* or *endnote*.

An element based practice lens as applied above is tuned towards the outside of the interview. It brings to view the normative organisation of the practice under scrutiny, and the negotiations of rules and understanding of how to do within a practice. Focus is on justifying interviews as a source to participants' *knowing-in-practice* (cf. [Reich and Hager, 2014 in Gherardi, in press](#), p. 4). The analysis is concerned with elements that structure participants' activities. Agency is placed in the progressive duality between individuals and social structuration. However, the talk-aloud-search session made me aware how mobilizing the tactile brings to view agency in a different way. The talk-aloud session with Thomas is illustrative as to how technology, discourses, meaning and the materiality of bodies acquire agency in being entangled in the interview situation.

Talk-aloud with Thomas

> Thomas looks for literature that exemplifies combinations of a particular set of theoretical positions from both medicine and the social sciences. He and his co-authors will explore the usefulness of combining them in their planned publication. 'There are all sorts of people floating around, working on this thing' he states, 'so I know for example that across the hall, Anna and Jim are working on it. I might take a look at their work'. Thomas opens his drop-box folder and looks through filenames indicating author names and titles. He does not identify anything interesting, so he says, 'I'll look in Google Scholar, just to get some ideas'. Thomas combines search terms related to two of the theoretical positions he and his co-authors are eager to combine. He immediately discovers by title several articles that apply the concepts in question. He points out that these articles belong to a field of research that he has been engaged with in the past. 'So, I have the notebook from a conference within this field that I attended a couple of years back'. Thomas gets up from his chair. As he rises, he complains about a bad back and about getting older. He walks across the floor and starts looking through his bookshelf. After a moment, he produces a notebook from the lower shelf while making a joke about how dusty it is down there. Thomas is standing in front of his shelves proclaiming, 'This'll provide me with further references'. He is still looking at the lower shelf when he adds, 'Okay, but then, I'll just go through this first'. He holds up a book written by his older sister. Thomas calls his sister his 'cheat-person'. She is a scholar within a discipline Thomas draws on in his research, but that he himself never received formal training in. Thomas flips the pages while saying, 'and then I might look through the references she has here. See, she is not familiar with my field of study, though she thinks she is. So, I only use this stuff so much, because I know there is other stuff that she just doesn't know about. So she has Smith, and that is useful, on the particular theoretical position'.

The sitting situations silence our bodies, the computer, proximity to peers across the hall, and the presence of books. Contrary, in the talk-aloud session above, they all contribute meaning in the situation. Through the talk-aloud search session, if viewed through a post-humanist practice lens, Thomas becomes entangled in material-discursive intra-actions. That which was hidden from view as performance-related silences (Martens, 2012) become evoked within the tactile situation. In the moment of the talk-aloud-session the interdisciplinary literature search is enacted as relational becoming. During the interview, Thomas and I are located in his office. It brings his mind across the hall to colleagues in fields relevant to his project. The search for relevant literature is relationally meaningful within the department, producing certain examples of coupling disciplinary approaches. Quickly, however, Thomas discovers that the concepts in questions are in use within a research field that he has engaged with in the past. This past is mattered through the sensing body. His back hurts, reminding him that he has been in the game for some time, and he brushes away the layer of dust covering the books at the lower shelf. Out of this mattered past, he fetches his sister's work. His wandering across the office seems to have transported him from the community of peers at the department, to other experiences and intra-actions, including kinship. The materialized closeness to both the past and to the here and now of the interview, and to his sister's work seem to entangle Thomas with discourses that exclude certain ways of making literature relevant to his current writing. His sister is his 'cheat person', a source of both relevant references to and of better understanding of works within a discipline of which he himself is not a trained scholar. Is this okay? Is it one of those questionable shortcuts that will be disclosed by reviewers who are more knowledgeable in that discipline? He negotiates the mattered discourse however, by pointing to how he combines insights and references selected from different sources.

With an element-based lens, the methodological challenge in focus is how to access knowledge-in-practice out there, i.e. knowledge as embodied practical rationality. Thinking with an element-based practice lens, performativity becomes a methodological obstacle in that it is only partly accessible. In the tactile, talk-aloud search session, when viewed through a post-humanist lens, on the other hand, performativity moves in with the core of knowledge production. Performativity moves in with the interview. The post-humanist lens brings to view *becoming-with-knowing* (Kuntz & Presnall, 2012). Knowledge in this sense *'manifests as an event'*, it is a *'becoming within embodied experience'* (Kuntz & Presnall, 2012, p. 738). The interdisciplinary researcher searching for literature emerges within the interview, i.e. in the discursive-material intra-activity of bodies, computers, databases, notebooks, office spaces and physical distances.

From reflexive to diffractive data production

Interviews are as much part of mundane performativity as any social practice. Methods are encounters between people and should be analysed as such (Warren, 2012, p. 130). Considerations about how encounters between researcher and participants affect data is one of several main concerns within reflexive methodology (Gemignani, 2017, p. 185). In Barad's (2007, p. 86) phrasing reflexivity is *'a proposed critical scholarly practice that aims to reflect on, and systematically take account of, the investigator's role as an instrument in the constitution of evidence'*. Thinking with an element-bases lens, this translates to a reflection about the interviewer's part in the mutual articulation of practice-elements within the interview. Focus is on the constitution of evidence through individuals' discursive interaction. A post-humanist practice lens points toward another way of thinking of researchers as part of the world about which they seek knowledge. It implies a transition from understanding reflexivity in methods in terms of reflecting individual participants, the interviewer included, and towards thinking of it as *diffraction* (Niccolini and Roe, 2014, p. 77). Originally, a physicist notion signifying waves bending when encountering obstructions, Barad explains diffraction in terms of method as *'a practice of reading insights through one another while paying attention to patterns of difference (including the material effect of constitutive exclusions)'* (Barad, 2011, p. 445). Knowledge always emerges from the coming together of multiple forces, humans, discourses and matter included. The interview abstract below demonstrates how in the tactile situations reflexivity emerges *'in-between heterogeneous bodies and agents'* (Hultman & Lenz Taguchi, 2010, p. 536), including me the researcher, rather than as a phenomenon tied to the cognition of encountering individuals.

Talk-aloud with Kim

> Kim looks for literature for an article she just started working on together with two colleagues. The purpose of the article, she explains, is to develop an analysis of a phenomenon by applying a concept from neuroscience. In terms of finding literature, she states that the goal now is to explore the development of the concept from traditional neuroscience towards modern applications across disciplines. 'That is how I work', she says, 'I go to these minefields, meaning they aren't really my fields of expertise'. When I encourage her to start searching for literature the way she usually would, she is reluctant to start working on the computer. She points her finger at the computer at her desk. 'Are we supposed to be in there? Work at it in there? There?' 'Maybe some?' I replied. 'Okay' she answered, 'but I haven't practiced'. She starts typing into Google Scholar. 'Well, it's either Google Scholar or the library online catalogue. But, honestly, I prefer visiting the library and having you to help me'. She disrupts her typing. 'Actually, I've found some books that I find interesting to start with'. She walks across the floor and fetches her bag from a peg by the door. 'No, I have it at home'. She explains about a PhD dissertation she thought was in her bag. 'Maybe it's being a cheat. That I found this PhD dissertation. It applies the concept in another field. I'll look at how he understands the concept […] And I'll scrutinize his reference list'. When I ask how she found the dissertation she tells me that she came across it when attending a meeting in a colleague's office in another university. It sat on his desk. 'I looked through it and ordered it for both my co-authors and myself. We're going to discuss it in our next meeting'. 'You see', she says, 'I'm good at detecting relevance, but not good at finding'. 'Not that I'm cheating or anything, but there's no systematics to how I get hold of stuff, so that I know that I have covered the field's literature'. 'I'm better at understanding what I read', and as she tells me this she says that she is 'blushing with embarrassment'. 'There are others, far more diligent in using available tools for searching literature

across fields. But then again, they just skim vast areas, which is how you have to go about if you are to say that you have covered what you claim to have covered'.

In the sitting situations, when viewed through an element-based practice lens, I came to matter by taking part, together with the interviewee, in a mutual fixation of meaning through articulation. Focus was on discursive interaction. This focus creates a divide between on the one hand the cultural, social and material realities to be accessed, and on the other hand, the language-based means by which we might access these realities. The interviewee and I negotiated understandings that arose as tellable talk in the interview, such as standards of systematics in literature searching. In the talk-aloud session above, however, an entangled relationality that includes the realm of the non-linguistic emerges to view. I came to matter as part of material-discursive entangled intra-activity. Even though I made explicit that Kim was free to start in any way she preferred, she immediately points to her computer and asks, 'Are we supposed to be in there?' When I admit that working on the computer is an alternative, Kim replies that she has 'not practiced'. Kim and I are physically present in her office, and she seems to expect me to observe, question and evaluate her specific ways of searching for literature. Clearly, she would rather reposition me as a participant within an activity she usually engages with, namely that of working with a helping librarian. Kim, the computer and I seem entangled with discourses of systematic searching in which search tools are essential means. Then she looks towards the bag by the door, remembering a dissertation she discovered in a colleague's office. Dissertations are for reading and for broadening her understanding. How did the author use the concepts she is exploring within a field different from the concept's field of origin? If it is relevant, it can also provide references to further reading. Moving (literally) away from the computer, away from me the librarian-researcher, away from the systematic approach, and towards the bag by the door, she steps into community with her co-authors. She steps towards academic discussions, colleagues elsewhere, reading, and scholarly minefields. A moment of puzzlement occurs. Kim wonders if the dissertation is *'a cheat'*, a shortcut to bringing literature together, but then she points out that she is better at detecting relevance than she is at finding. The conflict between systematic mapping across disciplines and going with a hunch about a random finding occur as blushing. The computer, the dissertation, me the researching librarian, moving and blushing bodies, and the co-author's office come together in the event as a dynamic relationship in which all add meaning.

If the post-humanist practice lens moves performativity to the core of knowledge production, this also includes me the researcher-librarian to the entangled becoming-with-knowing. In sitting situations reflexivity surfaces as a consideration of myself as an interlocutor in the articulation of elements of a practice external to the interview. Diffraction on the other hand, opens our awareness to the unforeseen, to sudden shifts and to contestations occurring in the tactile interview. Kim, me the researcher-librarian, the dissertation, the computer, our moving bodies and the surrounding discourses are entangled forces producing differences in the unfolding of intra-active becoming of the interdisciplinary literature search. Nicolini and Roe (2014, p. 77) points out that diffraction is *'attuned to widening possibilities'*. Following their way of putting it, the elaboration taking place in Kim's office is dispersive, *'it multiplies what a practice may be rather than trying to reveal its inner core'* (p. 78).

Concluding discussion

By studying practices and their performativity, we get the opportunity to analyse information-related activities as situated complex ongoing relational accomplishments. Because these accomplishments partly constitute the unspoken, the embodied and the mattered, empirical researchers have proposed enriched interview techniques that hybridize aspects of interviews and observation. In the current paper, I have highlighted how materially enriched interviews, in a study on interdisciplinary literature searching, can produce different kinds of epistemic objects that enable different kinds of research results.

In response to how performativity is accentuated in data produced by materially enriched interviews, the analysis illustrates how performativity and data are differently coupled across lenses. Element-based practice lenses are attuned to practices as performed ordered products (cf. Gherardi, in press). The question is how interview data can represent these ordered products. Viewed through an element-based lens, the interviews make visible interviewees' negotiations of the normative aspects of the literature-search-practice (cf. Martens, 2012; Nicolini, 2009). According to Thomson (2018, p. 513), data produced through materially enriched interviews can also connect *'spatial, material and embodied qualities of information behaviour and practice'*. We can keep interviews consistent with the naturalistic paradigm of qualitative research and justify them as data sources that inform us about performances happening *in situ* elsewhere (cf. Thomson, 2018, p. 513). This is an important justification for practice-based empirical research where naturalistic observations not always are obtainable (Thomson, 2018; Nicolini, 2009).

Nicolini (2009) and Thomson (2018) seem to view enriched interviews as data-collecting devices aimed at producing valid representations. A post-humanist lens, conversely, does not accentuate performativity as representable enactments of ordered products. Gherardi (in press, p. 11) takes notice of Shotter (2013, p. 41) who states, *'small changes in words can provide big changes in our orientations'*. The transition from thinking with *inter* to thinking with *intra* is according to Shotter (2013, p. 36) *'a shift from living in a world of already made things to a world of things-in-their-making [...]'*. When we read the interview-abstracts through a post-humanist lens, it is not the ordered products of performances happening elsewhere that come into view. Rather, what comes into view is the phenomenon – e.g. the interdisciplinary literature search - as a practice-in-its-making. Practices-in-their-making come into view when we take into account the inseparability of materiality and discourse, matter and meaning (cf. Barad, 2003, p. 822), and see the interview as an event of intra-actions. We move away from discussing the interview as a data-collecting device, and towards discussing it as a joint analytical practice, i.e. a mode of ordering (cf. Gherardi, in press).

This shift in orientation is consequential as regards the second question of this paper, namely, what we can make of the data produced in terms of articulating knowledge about interdisciplinary information-related activities. Thomson (2018, p. 528-530) describes enriched interviews, in which researchers are co-present with participants through embodied interaction, as an opportunity of increased researcher reflexivity. When we seek to make practices visible for representation, researchers should observe limits set by inter alia the capacities of our bodies, personal perceptions and expectations. We should acknowledge that interview-based knowledge about practices is tenuous. These are surely important considerations when we seek to represent disciplinary and interdisciplinary practices from an information research point of view (e.g. Pilerot, 2016; e.g. Gullbekk and Byström, 2019). In shifting towards thinking with intra, however, we articulate a different kind of knowledge. Instead of collecting data for an analysis of dynamics inter disciplines or inter scholars, I enmeshed with the literature search as an *intra-disciplinary becoming*. The intra-disciplinary becoming is entangled with the performativity of the method (cf. Law, 2009). Intra-disciplinary becoming is the enactment of a phenomenon through intra-acting agencies. In the tactile situations, these were the different disciplinary discourses surrounding the literature search, me the embodied researcher-librarian, interviewees and their past encounters with scholars of different disciplines, relatives trained in particular disciplines, time materialized as dust and aching backs, and systematics materialized as indexing tools. I become part of a boundary making practice of inclusions and exclusions. The intra-action of other questions, spaces, tools or bodies would probably enact other phenomena (cf. Gherardi, in press, p. 6).

Intra-disciplinary becoming implies a diffractive reading of our data, meaning, *'we look for events of activities and encounters, evoking transformation and change in the performative agents involved'* (Hultman and Lenz Taguchi, 2010, p. 535). Because we are part of these events, and paraphrasing Hultman and Lenz Taguchi (2010, p. 540), our engagement through interviews in particular places and points in time are interventions with the world. Intra-disciplinary becoming may entail new possibilities for all parties involved. Interviews imply responsibilities: they are ethical practices.

In conclusion, materially enriched interviews, viewed through an element-based lens, contribute to analyses of practices from an outside point of view. Materially enriched interviews, viewed through a post-humanist lens, makes researchers part of practices-in-their-making. This paper's discussions of this difference are based on a limited set of interview abstracts from a single study on literature searching in an interdisciplinary setting. The paper also forwards a restricted set of lenses. Broader future explorations is recommended of the opportunities and restrictions associated with differences between interview-based epistemic objects.

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