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The search-ification of everyday life and the mundane-ification of search

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Introduction

This study investigates the role of online searching in everyday life. Online searching – typically understood as the use of general purpose search engines – has developed into a close to naturalised part of most peoples' lives and the dominant search engine Google has gained a prominent status in contemporary culture (Hillis et al., 2013). Google has turned into a commonly used verb and 'to google' is now almost synonymous with 'finding out about things'. Studies have shown how search engines in many areas are identified as the premium tool for finding information (e.g. Jamali and Asadi, 2010; Rowlands et al., 2008). Within information science, online searching has been extensively investigated within information retrieval (IR) as well as in experimental laboratory studies on search behaviour (Jansen and Rieh, 2010). However, the knowledge gained from information science has only in exceptional cases been used for enabling an understanding of the role of online searching on the web in and for everyday life (Schroeder, 2015). At the same time, studies on information seeking in everyday life have rarely considered online searching. Thus, as a discipline, information

science needs to develop an in-depth understanding of online searching in and for everyday life.

We approach online searching as an activity central to many of today's social practices. More specifically, we study how people experience and reflect on online searching – i.e. the use of general purpose search engines – in relation to different parts of their lives and which pivotal issues emerge as shaping the understanding and meaning of search and search engines in contemporary culture. The aim of the study is thus to elucidate how meaning is assigned to online searching by viewing it as a mundane, yet often invisible, activity of everyday life and an integrated part of various social practices. We have carried out 21 focus groups with 127 people in order for them to discuss and reflect on a subject that is often not thought of and even less often communicated in research.

When studying peoples' information seeking the dominant theoretical lenses have been person-in-situation theory and task theory (Talja and Nyce, 2015). In either case, the starting point is a cognitive problem that demands information as well as information processing in order to be solved (e.g. Johnson et al., 2015). In contrast, here, we start from an understanding of information searching as entangled across practices and material arrangements (Orlikowski and Scott, 2008; Orlikowski, 2007) and thus as an ordinary part of everyday life. With this article, we intend to broaden an otherwise narrow focus on searching in order to open up for a research-based discussion in information science on the role of online searching in society, with a starting point in the stories told by users. We also intend to complement research carried out with a particular interest for peoples' experiences and meaning-making with an understanding

for how these experiences and the making of meaning could be considered in light of their algorithmic shaping.

Literature review

Earlier research points to how general purpose search engines have come to reduce the multiplicity of how people go about finding information (e.g. Jamali and Asadi, 2010; Rowlands et al., 2008). For example, Rowlands and his colleagues argue in 2008 that not only young people but people in all ages rely on Google to such an extent that it is justified to talk of a *Google generation*. According to Marchionini (2006), there are different types of searches, depending on the complexity of a question. "Looking-up" searches are the simplest type, while searching for learning and for investigation requires interpretation as well as multiple searches, sometimes over a longer period of time (ibid). This is a useful distinction and certainly accurate in many cases. Having said that, in the present study, this dichotomy becomes somewhat blurry. Our participants often refer to "looking-up", yet it seems as if complex issues are turned into simple question of facts due to what we can call a search engine logic, as we suggest and develop later (see below).

Taraborelli (2008, p. 196) distinguishes between evaluative judgements (content) and predictive judgements of reliability, i.e. judgement made "prior to its actual inspection", and claims that the latter is important when understanding how we trust web information. Hargittai et al. (2010) show that young adults, rather than evaluating a content's credibility, tend to rely on media brands (cf. Huvila, 2013). When discussing how people assess credibility of information it is therefore important to include an understanding of how a website is found and to not only focus on the website itself

(Huvila, 2013; cf. Hargittai et al., 2010; Sundin & Carlsson, 2016). One such cue, according to Taraborelli (2008, p. 201), are "algorithmic endorsement indicators", in this case the order of results that the algorithm produces. Earlier research has shown how dependent we are on the order of search results when choosing websites (Kammerer and Gerjets, 2012; Pan et al., 2007). However, from transaction log studies, we learn that search engines seem to be used primarily for finding and accessing information related to consumption and leisure (Waller, 2011). This led Waller (2011, p. 774) to conclude that "the Internet search engine is not only an interface to information or a shortcut to Websites, it is equally a site of leisure". This and similar research form the basis for Schroeder's (2015, p. 152) claim that "the information science approaches /…/, focusing on how effectively or successfully people find results, provide only a limited perspective".

In information science, the use of search engines is investigated in several fields of the discipline. Jansen and Rieh (2010, 1517) note that "[t]he fields of information searching and information retrieval both focuse on the interaction between people and content in information systems". While information retrieval (IR) focuses on evaluating information systems through the concepts precision and recall, the literature on search focuses on how users interact with IR systems. From Jansen's and Rieh's (2010) literature review we can conclude that social and cultural aspects are often missing. In conclusion, there is a need for information science research on searching to go beyond an understanding of online searching as always only starting in a manifest cognitive problem and instead move towards understanding online searching as embedded in the social and cultural practices of everyday life.

In information science, the interest in everyday life information seeking gained attention in the so-called user-centred tradition and the uptake of qualitative research methods in the 1980s that started from the individual user rather than from the information system. Savolainen (1995; see also Lu, 2007) observes in his survey of earlier literature on "nonwork information seeking" that people prefer informal to formal information. Since then, internet and specifically social media have blurred the distinction between informal and formal information systems and social media makes informal information accessible through information systems. Concurrently the success of internet search engines has made searching constantly available while the development of the information infrastructure has made information systems more present in the everyday life of people. Erdelez (1997) and Williamson (1998) have both investigated how people run into information by chance rather than by making a rational choice. Drawing on Wilson (1977) Erdelez (1997) develops how "information encountering" often happens when we are doing something else. However, what we find online, also (seemingly) by accident, is dependent on the algorithms that search engines and social media depend on (van Dijck, 2013). In this sense, accidentally encountered information is also always algorithmically framed and often personalised by for example previous searches and geographical location (e.g. Abel et al., 2011; Feuz et al., 2011; Hannak et al., 2013).

Rieh (2004) investigated web searching in peoples' homes as embedded in everyday life. The theoretical framework for the study is what Talja and Nyce (2015) describe as person-in-situation or task theory, where the starting point is considered to be peoples' information needs, but the results point towards a broader understanding of web-based information seeking. Rieh (2004, p. 751) highlights that "subjects did not always initiate

the search process because they had specific information problems to be solved". An interest in information seeking out of curiosity paves the way for a growing interest in the mundane aspects of information seeking.

Despite a growing interest in studying everyday life in information science, as noted by for instance Kari and Hartel (2007), such research often starts from a "problem" or a "need". McKenzie (2003, p. 19f) summarizes the critique of earlier models of information seeking. She sees them as ill-suited for understanding everyday life, since: 1) they focus on active information seeking, leaving aside "less-directed practices", 2) they are often dedicated to studying professionals' information seeking, omitting "a holistic consideration" of everyday life, and 3) they tend to start from a cognitive understanding of information seeking, largely inconsiderate of social and cultural understandings. These observations led McKenzie (2003) to advocate an understanding of information as grounded in social practices. She (ibid, p. 26) identifies four modes, going from "active seeking" to "by proxy" as the two extremes, where active seeking is the closest we get in her study to online searching. Since then, interest in social and cultural theory has been steadily growing in information seeking research, particularly in the approaches drawing on and developing practice theories (see for example Cox, 2012; Lloyd, 2010; Pilerot, 2013; Rivano Eckerdal, 2012). However, so far research in this tradition has rarely been interested in online searching. The starting point in practice theory is social practice, and search and search engines are discussed only when they are identified as parts of social practices.

Thus, there is a divide in information science between on the hand empirical work on the use of search engines and on the other hand work on information seeking in everyday life. The latter are often theoretically inspired by various practice theory approaches. Yet, so far the use of search engines more specifically has not been elucidated within such a framing. We attempt to bridge this divide. With mobile and ubiquitous access to ICTs and search engines, searching is not just done at work or at home, but also in-between and – at least potentially – almost everywhere else.

Trust, authority and everyday life

Information infrastructures and everyday life

A sociomaterial understanding of searching in everyday life calls for an analytical focus on the ways in which people and technology are constitutively entangled (Orlikowski, 2007; Orlikowski and Scott, 2008). Actors are treated as constantly being *made* through their interactions with other actors (Kavanagh et al., 2015). In our case focus is on the constitutive entanglement of people and their various everyday life practices, of information and the search engine and its devices and how this is imagined in stories of online searching Search engines are literary being re-made each time a search is conducted (Haider, 2016). That is, search engine functionality is developed every time it is used. At the same time, a human actor is made every time he/she interacts with a search engine. Within a sociomaterial understanding, the social needs to be understood as intimately woven into the material and vice-versa. In a similar post-humanistic manner, Kavanagh, McGarraghy and Kelly (2015, p. 8) describe their investigation, with references to among others Karen Barad and Bruno Latour, of "the social life of

algorithms" as starting from an "emphasis on process, or an ontology of becoming". That is, the authors suggest a research focus on how algorithms are used, rather than as a fixed phenomenon.

Together, material actors form sociomaterial assemblages (e.g. Suchman, 2007) or infrastructures (e.g. Bowker et al., 2010). We follow Bowker and his colleagues when defining infrastructure as "pervasive enabling resources in networked form" (Bowker et al., 2010, p. 98). Infrastructure as a concept is often present in the STS literature as describing material resources for conducting science (ibid). One aspect of this infrastructure concerns how information is produced, configured and used as a resource for scientific practice. An information infrastructure is not passive and static, but made and shaped by the work of many scientists and scholars. We appropriate the concept of infrastructure as it has been developed in the STS literature, chiefly for understanding how science is made, and apply it to the study of everyday life. In our research, we focus primarily on search engines, but include to some extent also social network services as they make their appearance in the material, as constituting an information infrastructure of everyday life.

The information infrastructure is constantly made through the interactions with people and technologies and it tends to become invisible for our eyes and consciousness as it is embedded into our daily lives (cf. Bowker et al., 2010). Bruce and Hogan (1998, p. 270) state, “The embedding of the technology in the matrix of our lives makes it invisible. In fact, the greater its integration into daily practices, the less it is seen as technology at all.” Google has an obvious role in people's everyday practices. Hillis, Petit and Jarrett

(2013) talk of Google as having become so naturalized in the everyday life that it has turned invisible. As a consequence, for many people searching is inseperable from other activities. Therefore, what is in many ways a complex filtering practice is increasingly understood as something simple and mundane (cf. Halavais, 2009).

Trust & authority

Peoples' reliance on search engines to carry out their daily life activities is here analysed through the lens of trust. The traditional philosophical understanding of trust concerns how we put trust in other people (Simon, 2010). However, there is a growing interest in how we also put trust in non-human actors to establish knowledge, such as scholarly/scientific publications (Haider and Åström, 2016) or Wikipedia (Simon, 2010). Simon (2010, p. 347) talks of "socio-technical systems" and describes how "[t]rust in such systems can be placed in human as well as non-human agents, in processes as well as in epistemic content itself".

One way to understand trust in search engines is to relate it to trust in an authority, which people – depending on the level of domain expertise – rely on. Wilson (1983) introduces the concept cognitive authority to discuss how we tend to attribute trust to certain people, books, instruments or institutions if we regard them as (our) authorities. He (Wilson, 1983, p. 166ff) puts forward four ways of approaching the authority of a certain text: through the reputation of the author, the name of the publisher, the document type and the content. What becomes obvious when regarding these ways of attributing authority is that they are not enough to understand how we assess information online, where the author is anonymous (such as Wikipedia, but also other

formats) or when we put trust in new kinds of filters to information (such as search engines).

Shirky (2009) introduces the concept of algorithmic authority something which he describes as "the decision to regard as authoritative an unmanaged process of extracting value from diverse, untrustworthy sources". Shirky mentions three characteristics for this type of authority: "material from multiple sources", "it produces good results", and that others also put trust in a certain technology. In Shirky's text, Google is mentioned as an example of an algorithmic authority. Lustig and Nardi (2015) frame algorithmic authority more broadly as “the authority of algorithms to direct human action and to verify information, in place of relying exclusively on humans” (p. 743). Yet, our understanding of the workings of the major algorithms in contemporary society is limited as the functionalities of algorithms are often hidden in the information infrastructure.

Method

While most people use search engines daily, studying searching in everyday life is a challenge. This is not least down to the way in which it often occurs spontaneously in short moments and because of the fact that when you observe it – today – all that can be seen is someone looking at a screen. We wanted to collect and analyse peoples’ reflections on and experiences of their use of search engines, in order to analyse the attributed meaning to searching, and we therefore turned to focus group discussions. Focus groups involve ”organizing and conducting a series of group discussions with the

objective of better understanding the attitudes, beliefs, practices, and values on a specific subject" (Bertrand et al., 1992, p. 198). Morgan (1996, p. 130) "defines focus groups as a research technique that collects data through group interaction on a topic determined by the researcher". This interactional component brings about reflections that single interviews would not do (Morgan, 1996). This is specifically important when investigating a topic often hidden in everyday life.

Methodologically, in the present paper, humans are talking more than non-humans which given our interest in sociomateriality could be seen as theoretically unorthodox. The search engine and other technologies are seen through the eyes of the human participants. On the surface, they talk about technology and their uses of it. However, they also talk about meanings and values, possibilities and limitations. They talk about society, about other technologies and about, as well as with, other people. Most of all they talk about how these different aspects link up and where they are integrated or impossible to fathom without each other and where there are gaps, frictions and missing links. In talking they make, unmake and remake the search engine. In some groups participants even take out their phones and search to try out something, to check a claim, to make a point or to show the other participants what they just discussed, thus literally inserting the device and the engine and the information space that they bring with them into the conversation. In that sense it is fruitful to think of what Suchman (2014, p. 48) describes as the trope of configuration, that is configuration as a "device for studying technologies with particular attention to the imaginaries and materialities that they *join together*". Talking about and discussing the role of search engines in everyday life opens up an entry point to the study of such imaginaries.

21 focus groups with 127 participants were organised between late autumn of 2014 and early spring of 2015. One focus group had 10 participants and one had 8, but the rest of the groups consisted of 4-7 participants. Since the aim of the project presented in this article is to understand online searching in everyday life, we organized focus groups with a wide variety of people at the same time as each group was homogenous in some way (Ivanoff and Hultberg, 2006). The participants were recruited in various ways that are described in more detailed in other publications (Andersson, 2017; Haider, 2017; Sundin and Carlsson, 2016). Each focus group was led by a moderator and each focus group consisted of two parts. The first part was dedicated to a common theme (search in general), identical across all groups, while the second part had a specific theme or involved people in a specific role. These were: teachers (6 groups), academic researchers (5 groups), 13-15 year old teenagers (6 groups) and adults interested in environmental concerns (4 groups). The focus groups were carried out as a part of a larger project consisting also of sub-projects. In the article, the group identity, stemming from the sub-projects, is not mentioned if it is not of importance for understanding the conclusions drawn from a specific quote. Results from the other parts of the discussions have been reported elsewhere (Andersson, 2017; Haider, 2017; Sundin and Carlsson, 2016).

All focus group discussions, except one which due to a technical problem could not be recorded, were transcribed. Three discussions were in English and the rest were in Swedish. The quotes from the Swedish speaking groups have been translated into English and each group is given a number (1-21) that is also used when quoting. The role of the moderator was to facilitate discussions among the participants. In total four different moderators (all authors of this article) were involved. They all used the same –

jointly established – guide for structuring and guiding the discussions in the first part. The participants received information about the purpose of the focus groups as well as the project in advance. Participants under 18 years old had an informed consent form signed by one of their parents. All but one focus group lasted between one and two hours. The first part took up between a quarter to half of each discussion and most of the material presented in this study stems from this part.

The focus group discussion started with the moderator asking the participants to take a few minutes and write down three occasions when the participants recently had conducted online searching. These search notes were then handed over to the moderator and the following discussions had the search occasions as reference points for discussions. Two broad questions, which the participants were asked to associate in relation to, were used in all 21 groups to get the discussion going: 1. When did you search the last time and how did you carry out your search? 2. When and where do you not search, when is it impossible to search? The questions were asked in order enable starting from specific situations (1) as well as to let the participants reflect on limits, if any, of searching (2). The moderators had a number of catalyst questions prepared to pose if the discussion died out. In some focus groups, the participants were encouraged to bring their smartphones, tablets or laptops and to use them during the discussion to illustrate opinions.

All focus group transcripts were initially read twice by the first author. Two analysis meetings with all authors were held in which the most pertinent and interesting findings were identified and discussed. Subsequently, during continued reading, the first author created broad thematic codes and attached those to passages in the transcripts. The

themes were validated with the other authors, who then checked the transcripts of the focus groups they themselves had conducted (4 to 6 each) and suggested and applied additional coding. Some of the themes appear in all focus groups, while others appear only in some of the groups. The analysis was sensitive to the interaction between participants, thus regarding focus groups as conversations (Halkier 2010; see also Andersson, 2017). According to Halkier (2010), the analysis can focus either on the content of the discussion or the interaction between participants. In the case of this paper, we have done both, yet with more emphasis on content

Findings

Online searching is embedded in everyday life and in the following we present how searching is attributed meaning. We propose an understanding of the relationship between searching and everyday life through two interrelated developments: a *search-ification of everyday life* and a *mundane-ification of search*. These two narratives organise the following presentation. Under each heading it is discussed how each narrative is expressed through three themes. The two narratives provide us with an understanding of two different aspects of online searching in everyday life, rather than describing what is searched for. In the following, the results from the focus groups discussions are presented, combined with an analysis.

Search-ification of everyday life

The narrative of search-ification of everyday life captures the ways in which today many ordinary practices depend on or at least involve online searching as self-evident, unquestioned activity tied to other activities and materialities making up the practices in question.

Facts for everyday thoughts. The note taking of the latest searches that started the discussions in the groups reveal some of the extent of which searching online has come to dominate how we go about finding things. One participant wrote down:

> 1) Title of a song
>
> Google vice searched first few lines of song. Behind blue eyes.
>
> 2) Dinner inspirations
>
> Searched on instagram #dinner
>
> Searched on Google what to cook for dinner
>
> 3) Bus info
>
> #swedbus on twitter see how it looks like other info on google.
>
> 4) name of condition.
>
> Searched symptom
>
> [1]

Online searching is not only identified with the general purpose search engine Google, but Google is accompanied by other services, in this case Twitter and Instagram. Other search facilities mentioned are for example library search tools, YouTube, Spotify, Instagram and in some cases searching on Facebook. However, Google clearly dominates in the search notes made by our participants. Another participant, a university student, described how she went about in her latest searches: “Using my phone. I searched for some video clips on YouTube. And I searched for some books and articles on Google. Then using my laptop. I logged in to the university library website to search and download some specific articles and to get to know where the books I am looking for are

located within university libraries." [1] The information milieu is for most participants very rich and the threshold, due to the mobility of devices, for checking for the latest information is low.

What is striking in the focus group discussions is the triviality of searching, that is, how the activity of online searching has penetrated many practices that make up everyday life:

> Participant 2: yesterday I was online because I was going to cook halibut and then I thought that I would make a hollandaise sauce but I couldn't remember how to make it so I went to recept.nu [a website] and then made it.
>
> Participant 7: I was online on my phone checking when it's time to crop lavender, it's during fall.
>
> [9]

When the smartphone makes instant searching possible – in the kitchen, in the garden or wherever you happen to be – you do not have to wait to find out. When asked what cannot be searched online, the participants often answered something similar to "there I want to claim it is always possible to search" [19], as one participant expressed it. We will get back to some limitations of online searching mentioned by the participants, but in general searching was rarely identified as a problem. The analogue information sources in print made it necessary to postpone what is now often constantly accessible wherever you are. Searching is not only associated with ordinariness, searching is also

identified with speed and immediacy: “Fast, fast, fast answers is what you’re looking for, like fast answers to short things like time, names or something like that” [5].

Almost all of the teenage participants had their own smartphone. Yet, interestingly searching was mostly associated with desktop computers and laptops in a school setting, while the smartphone was mostly associated with communication and social network services.

> Moderator: So you, what do you do when you need to search for something when you’re using your mobile.
>
> Participant 2: If it’s really important then I use my phone
>
> Participant 3: Like images, so if you want and image but if I need to read something or look something up then I do it on the computer.
>
> Participant 1: If I’m just looking something up quickly, like how long a certain river is then it’s possible to check on the phone but not when it’s like a lot of facts.
>
> [12]

In general, online searching was described as an important activity of everyday life and information found through searching helped the participants with their daily questions and problems. In fact, searching appears as a *leitmotif* for many of the participants’ information activities throughout the day and it is often associated with the physical device on which it is carried out. However, the younger participants reflected on searching mostly as related to school tasks (cf. Andersson, 2017).

Googlization. Many different tools can be used for searching online and they also make their appearance in our material as we discussed above. Yet, Google dominated to such an extent that it seems almost justified to not just speak of a search-ification of everyday life, but rather of a Googlization. In fact, the general purpose search engine Google unites various different types of search engines under its interface, e.g. image, news, academic materials, blogs, video and so on. Together with the rest of the Google universe, which includes for instance cloud storage, email, film and music distribution, and the Android platform, Google has developed into a close to unavoidable and ubiquitous part of our information infrastructure. Vaidhyanathan (2011) coined the term Googlization for describing this development, something which "connotes media concentration", as not least Rogers (2013, p. 84) points out. This Googlization of the web reduces the number of access points to – in many cases – just one – although a search might pertain to different types of materials and be carried out under quite different premises. The Googlization of the web and thus of search has implications for everyday life.

> Moderator: So when did you search for something online and what did you do, so it's basically the same question as when you thought about ...
>
> Participant 1: I always go on Google and search there. So yesterday I needed to find the address to eh I am going to a doctor's appointment on Thursday and I needed to know where they are and the number there so I googled it and yeah so ...
>
> Participant 2: Me too. Google is the main source for ehm, all type of searches.
>
> [18]

In fact, Google is not just used for information searching in a more traditional sense, that is for finding out about something, but new ways of doing things are being established through the possibilities that Google offers. A prominent example is spell checking, which came up in many focus group discussions: "I usually check even to get spell-checking" [14]. In another focus group with teenagers, the moderator asks:

> Moderator: But what about Google makes it so good?
>
> Participant 3: It's so easy.
>
> Participant 2: Yeah, it's easy and then since, if you search for something then what you're looking for is often there as an option [in the search result]. I mean, since it ranks based on what people search for.
>
> Participant 2: It's easier, I mean you understand it better. It's like, mostly what I search for comes up at the first try. Otherwise you have to look a bit more.
>
> [12]

The algorithmic authority assigned to Google by our participants is very high. Participant 2 seems to have misunderstood how Google prioritises and ranks search results, but the idea of how popularity is the primary organising principle is referred to as something positive. Also, in the quote, the search engine's algorithm is the active subject doing the ranking. The frequency of certain search terms constitutes the basic data for providing the users with pre-suggested search terms, but the order of links is organised primarily through weighing the popularity of in-links.

A group of researchers discussed how Google replaced other ways of finding information. One of them upheld the role of bibliographic databases, but another one reveals he has come to use Google also for that purpose.

> Participant 3: Otherwise I use Google for almost…
>
> Participant 2: Almost everything.
>
> Participant 3: Yes.
>
> Participant 2: Unless it's articles.
>
> Participant 3: I have actually even started to look for articles on Google now.
>
> [20]

For almost all participants searching online is the first choice when they want to find information about an issue. As two teenagers put it, we stop searching only when the technology stops us.

> Moderator: When and what do you not search for? So when is it not possible to search?
>
> Participant 3: When the internet is down.
>
> [All participants laugh]
>
> Participant 1: When my phone is out of battery.
>
> [14]

The same way of relating to the question of when searching is not possible is expressed in a group comprised of middle-aged participants. The moderator asks: "When do you

not search?" and gets the answer: "When I've used up all the data allowance [of the phone subscription]" [2], followed by a giggle. It almost seems as if the question from the moderator as such was understood as absurd. We search, and do so preferably with Google, as long as we are online.

Having said that, there are exceptions and situations when people control themselves and their urge to search for various reasons. A common reason is social code. It is seen as impolite or as too disruptive to a conversation. However, occasionally people restrict themselves quite consciously because they do not want to find out about something, for instances the plot of an ongoing TV-series or the consequences of an illness. Another exception that came up in a number of groups was grounded in a fear of surveillance. Participants did not want to provide Google with their data when looking for information in certain areas. (Haider, 2017)

Searching as argument. When the information is only a few keystrokes away it is difficult to leave a question unanswered. Therefore, settling disagreements is a returning reason for searching online:

> So you have two people and they have contradictory opinions and then they start to take their phones to look for the better argument, who's like right or wrong [laughter] but then I realised it changed something within how you speak with your friends /.../
>
> [4]

Google is an actor constantly involved in re-making social relations at the same time as the social relations also construct the authority of Google. In the social life of the Google algorithms (cf. Kavanagh et al., 2015), settling arguments becomes easy and the search engine makes some discussions superfluous. At the same time, according to this participant, something gets lost: "I like it more when you can discuss something for hours, but you never have those discussions anymore, you just you know if you disagree on something you just look it up and get the... "[1].

Disagreements are here constructed as factual and thus framed as possible to settle by means of Googling. The search-ification of everyday life thus appears to contribute to construct complex issues of knowledge as fact-related or at least as searchable. A young participant describes how she undertakes online searching in order "back up" information already found:

> Participant 1: It's also if I need, like I need more sources. Even if I've found one good source I still need something to back it up. Then I'll use Google to see if I can find something there that also backs it up.
>
> Participant 5: Something in an article that supports what is stated on Wikipedia.
>
> Participant 1: Yeah exactly.
>
> [12]

Participants frequently reflect on the fact that search engine results are not neutral at the same time as they often described how they rely on Google. They also consider their own active roles in shaping the information they retrieve. For instance, one participant

explains how she searches for "milk", a product she believes is unhealthy: "Then I don't sit there and google 'milk good for your health'. Then I google 'milk bad'." [3] The participant describes how she by means of choosing keywords gives the phenomenon a certain perspective. Another participant talks about how she uses Google to confirm "what you think you know" [4]. These are examples of how searching becomes a way to "back up" and confirm already taken (often ideological) positions. Searching is used as a strategic resource for positioning along pre-established convictions. Bias is an inherent part of most expertise. In a way, Google becomes a tool to reflect on (one's own and others') biases, a tool for conscious confirmation bias.

In some cases, the participants talk about how they formulate their task, i.e. the problem a search concerns, in relation to what type of information they already know can be found. In a focus group with academic researchers, one participant expressed it as follows:

> I mean the development in society in general is towards increased efficiency and eh, so there's like no time to follow up on certain threads like for example if I don't find it, ok then I'll chose another way to approach the topic in a way where I might find something online. [17]

In the same discussion, a few minutes later, another participant claimed, "/.../ [it's] not the reflection that carries out the search, but rather you search while reflecting on what is possible to find" [17]. This complicates the notion of a rational process where the formulation of a problem is followed by a search for information to solve it. Instead, the

participant describes how searching, reflecting and problem formulation are intertwined and how they are in fact each other's outcome.

Mundane-ification of search

The narrative mundane-ification of search captures how search itself – previously a specialised, professional activity – is increasingly a routine element in a variety of practices.

Searching as routine. Searching has gone from something distinctive, clearly identifiable, to be a part of the constant stream of everyday life practices. We search on the bus on our way to work, during seminars, in the waiting rooms or when having supper. Theoretically, this can be framed as searching having gone from being a practice in its own right to being integrated into other practices. It is almost a basic characteristic of everyday life and to be more or less invisible, but the focus groups have to some extent dissected the everyday life of the participants and made searching visible. We could understand this change in the light of the medium:

> Participant 1: It has sort of become a habit, a routine in some way. It's not like "now we're going to search on the Internet".
>
> [Everybody laughs]
>
> Participant 1: "Let's gather the family", no the early computer and those CD-ROM discs and you put it in the computer and you got to see a movie of a lizard running.
>
> [5]

In the quote, using a CD-ROM encyclopaedia was about more than just finding information. It was also, even if it is here referred to with irony, an occasion for gathering the family, a practice in its own right. Encyclopaedias, as well as many other genres of information, often have a double function – a technology for instrumentally accessing information and solving questions as well as a technology for identity construction (Haider and Sundin, 2014). When the encyclopaedic genre is remediated from print or CD-ROM to the web, much of the identity-function gets lost. Instead, Google in combination with mobile devices, create conditions for making the activity of accessing information more or less seamlessly integrated in the practices of everyday life. In the following quote, this mundane-ification of search is articulated by one participant.

> Participant 2: Often I think because it's so much more accessible when you sit with your phone that you search more eh but you also search more nonsense since it's so accessible so it's a lot of nonsense instead. If you had a computer in the right side corner of a corridor you would search more like now I'm doing this and with structure. Now it's just so much.
>
> Participant: You just surf the web.
>
> [5]

When searching has gone from being a practice in its own right, as in the example with the CD-ROM encyclopaedia above, to being embedded in other practices, it has also become more invisible. The opacity of searching in day-to-day, routine practices makes critical assessment of credibility rare, something we will discuss further in the next section. The algorithms of search engines and the materiality of the device work

together: “I think for me when I moved to Sweden like a year ago ehm I got my first smartphone and before I didn't really need a smartphone I didn't you know, if I wanted to find out information I would do it before I went out and now I use my phone for everything you know” [1]. The smartphone shapes a seemingly contradictory marriage between dependence and independence: "I'm more dependent on ehm search engines and using the internet, more than before and something else is that when you are that dependent on the online information the fact is that you get more eh somehow [inaudible] independent /.../" [1]. The independence, according to the participant, comes from the fact that Google provides him with a resource to find his way in an unknown city.

The dependence of search could sometimes be made visible, as in this case:

> We’re sitting and talking and he just, "I’ve been thinking about watertowers. How do they work and what are they good for? And can the technology be developed like do they need to be so damn high?" And then I just start searching for all the water towers in the world and he just: - "No can’t we for once just talk about it for a while based on what we know and then just let it be and then later maybe we can check if what we said turned out to be total gibberish or if what we said was actually somewhere close to the truth because then it feels as if it makes us grow [as persons]".
>
> [2]

The participant, an internet savvy woman in her mid-30s, was challenged by a friend to not go online in every discussion. A discussion is something else than just the solving of

an information problem and the integration of search into an everyday discussion with a friend was seen as disturbing the conversation. Searching disturbs the original purpose of some social situations and people also actively curtail it (Haider, 2017).

For many the smartphone is the access point to almost everything. In the following discussion amongst 13 year olds this is expressed as follows:

> Moderator: So what does a usual day look like with your phone?
>
> Participant 3: Snapchat, all the time. Snapchat and music.
>
> Participant 2: I watch Youtube for like 3 hours every day.
>
> Participant 3: Yes Youtube .
>
> Participant 2: At least 3 hours.
>
> Participant 3: [inaudible]
>
> Participant 1: Youtube, make phone calls, send texts.
>
> [Several people laugh]
>
> [11]

Here, general purpose search engines are not specifically mentioned, but searching is also done in Yotube and social media. The smartphone is almost always present in these teenagers' lives. However, as also mentioned earlier, for the young participants online searching is often associated with school activities:

> Moderator: So when you think of search, do you think of school or freetime?
>
> Participant 3: School.
>
> Participant 2: Both.

Participant: Both.

Participant 2: Yes.

Moderator: Both. How are they different?

Participant 2: School is more facts.

Some participants make sounds of agreement.

Participant 2: free time is more like interests.

[12]

The specific association of facts with schooling has also been highlighted for example by Alexandersson and Limberg (2012) and by Francke, Sundin and Limberg (2011).

Searching as a routine stresses identity construction rather than problem solving. Searching contributes also to defining who you are rather than solely what information you need.

Credibility as a matter of importance. When searching for information online in everyday life, the information is often not assessed by the participants for its credibility or relevance. Drawing on Wilson's (1983) concept of cognitive authority or Lustig's and Nardi's (2015; cf. Shirky, 2009) concept of algorithmic authority, it is possible to understand this lack of assessment as a very high attribution of authority and thus trust to search engines in general and to Google in particular.

Participant 1: But I think like I said that it's routine, you know, routine over the whole thing. Before it was a bit exciting to use the computer but I mean

now it's like I read it like I read the morning paper, I just sit there and scroll [inaudible].

Participant 2: I haven't really reflected on it, like why does that come up on top or maybe I do sometimes but I think that you just trust Google.

[Laughs]

[5]

There is no need to assess the credibility of sources, when you put such trust in Google. The assessment of information is thus to some extent outsourced to Google (Sundin and Carlsson, 2016). This allocation of trust could easily be related to the definition of algorithmic authority as provided by Lustig and Nardi (2015, p. 743). Rogers (2013, p. 86) speaks in a similar manner about Google as "a status-authoring device", referring to how Google construct a hierarchy of importance rather than just representing it. In the quote below, the young participants express their trust in the infrastructure for searching in school.

Participant 1: If you don't know anything about the country you just write what it [Google] says.

Participant: Yes, most of the time that's the way.

[Laughter in the group]

Participant: Yeah, it says so here so it should be a bit true.

Participant: 1: Like I don't know anything about Napoleon, here it says that he was French then I'll write that. Was he French?

[13]

When online searching is embedded in everyday routines people tend to trust the search engine to such an extent that the assessment of information becomes relocated from the faculty of the individual to the algorithms and index of the search engine: "the first link is usually the best one" [12]. We know from previous research that people's attention is often restricted to the first links on Google's results page (Hargittai et al., 2010; Kammerer and Gerjets, 2012; Pan et al., 2007). Accordingly, for many people searching appears to be effortless and what is a complex filtering practice is understood as something simple and mundane.

> Moderator: But on Google ... if you google such a thing like you did now is there any value in what comes first and do you ever go to the second page ...
>
> Participant 1: Only when I'm desperate to find something [laughs]
>
> [Everyone agrees: Yeah/Mm]
>
> [1]

The above quotes are examples of how people rely on the ranking algorithms of Google, without maybe even thinking of it. Yet, there are also many examples of how the participants negotiate and also question the authority of Google based on the issue at stake, that is how important a question is. One participant formulated it as follows: "So it depends on the issue that you have" [18] and another participant said in a similar way "/.../ when it's just trivial things you're looking for then it doesn't really matter how true something is maybe" [5]. In another focus group a participant answered a question from the moderator if they trusted Google to provide the "right hits":

> I think it depends more on what you're looking for. Often I'm not looking for like facts on Google because then I use NE [a Swedish encyclopaedia] but if I'm looking for a pair of new shoes then it's enough to write what type of shoes it is and then several options will appear and then I trust that. [9]

These and other passages from the discussions modify the dependence on Google's ranking for credibility assessment. In fact, many participants skilfully reflected on when to rely on Google's ranking and when not to. One of the young participants distinguished between different types of information:

> But like these normal things, like capital city and president or something like that and how many people live there, all that is usually the same on all websites. And it's like that, then I'll write that. Because you just do that. But then if it's more like less obvious things then it's more like, it says so here so I'll have to trust that and then I go to the next website and it says pretty much the same thing. Then I suppose it's something like that. [11]

Another way of expressing the limitation of the algorithmic authority of a general purpose search engine was, despite the personalisation of Google Search, when a participant was looking for very contextualised information, in this case a local information on a restaurant: "I would go on Facebook like and ask like what's the best restaurant to go to" [1]. Facebook, according to this participant, provides him with "people in my circle that yeah I would feel that we have the interest and would trust that

more" [1]. In relation to Lu (2007) it is possible to say that the role of informal information is very important, but social media is providing a new venue for this kind of information. As Bozdag (2013; see also Schroeder, 2015) notices, interactions with algorithms can be seen as a new form of gatekeeping.

Passing time. A recurrent theme in the discussions was how online searching was carried out as a way of letting time pass. The theme is less present than many other themes, but it has emerged as very interesting when investigating the social and cultural aspects of searching. This is not just mundane-ification of search in general. It is a specific non-directed way of using search engines that bears the sign of amusement or just killing time.

> It's like I take out my phone and do something to pass the time or if I'm out of electricity at home then I'll sit and do something on the phone. But if I can't do that then I'm just hmmm, that's the way it is unfortunately …. it's a bit frightening actually.
>
> [5]

The participants do not always talk about searching per se, but rather the use of smartphones in general. However, online searching is one such activity to kill time. Searching could, as in the quote below, start with a specific task, yet end with something entirely different.

> Participant 1: Bored … yes, damn it, I have searched for some random stuff.

> Participant 3: I think that's one of the more catastrophic and exciting things in the society that we live in, you get so easily distracted. A google search can start with me looking for the proper way to spell a certain word and then I end up somewhere completely different and it has taken me six hours.
>
> [2]

Online searching tends, according to our participants, sometimes to be without a specific goal or task. It is not necessarily a question of searching for pleasure or shopping (cf. Waller, 2011), it is the searching itself that is the pleasure. When searching is a way of passing time, neither search results nor the websites the search engine points the user to, need to be assessed in terms of whether they are true or not, but rather as interesting or uninteresting.

> I'm actually not sure if I can remember that I tried to find something but I couldn't but I think it's more the question of sometimes I don't even know what I'm searching for I mean I'm typing in something and then you like oh yes that's interesting and that's interesting and then you especially with the tab function which I use quite a lot as well and I open all these tabs and they're all in line and I'm clicking through but at one point I don't really remember any more what I was at the beginning actually searching for or it's not always that you have this clear definition that I'm looking for this and not this private and also not for university so basically I'm trusting the system in a way to give me information
>
> [4]

The rationality of searching is blurred and, again, we see how the algorithmic authority of the search engine provides trust. As stated above, for the teenagers, the smartphone is only to some extent associated with online searching. However, the smartphone is always present as soon as there is a possibility: "I mostly take out my phone when I'm not doing anything else just to have something to do" [14]. The role of searching as a playful activity becomes specifically apparent in one quotation where Youtube is discussed:

> Moderator: Do you search, what do you search for on Youtube?
>
> Participant 2: How to draw cats.
>
> [Several people giggle]
>
> Participant: All kind of things depending on what you're doing.
>
> [13]

When you do not search for an epistemological content, the idea of assessing the credibility or factuality of what you find becomes more or less irrelevant.

Discussion

We spend more and more time searching for information. In a way we could talk about a *search-ification* of everyday life. Online searching has become the most common way of finding information and other ways of finding information, such as through indexes or a table of content have gradually become less important. General purpose search engines, in particular Google, have become so dominant that we tend to use them for finding codified information we previously used more specialised search engines for or in

situations where we would have asked another person. The near ubiquity of mobile devices has turned searching into something we live our lives with. We search for timetables, opening hours, news, recipes, job information, symptoms of illnesses, or simply for distraction. The smartphone, tablets and other mobile devices have made constant searching possible, thereby providing people with external memory resources always at hand. The dramatically increased access to information, together with the apparent ease with which search engines produce results, makes it possible for most wishes people might have for knowing more about something to be immediately turned into a query posed to a search engine.

The focus group discussions were full of stories that could be related to solving a problem, even if this study contextualises searching in a different way than most earlier research on searching. People grab their phones to find information on doctor's appointments, how to cut lavender or how to prepare a halibut. The constant presence of mobile devices has surely brought about major changes regarding access to information in everyday life, and thus the way we construct a lack of information in many daily situations. The dominance of Google in the information infrastructure has made the term googlization useful for highlighting Google's dominant position (Rogers, 2013; Vaidhyanathan, 2011). The focus group discussions reveal that the googlization of the information infrastructure is mirrored by a googlization of the way users' chose Google when searching for information and other activities. Google could be said to almost colonialize everyday life by helping users with all kinds of questions – from searching recipes to spell-checking. Google could even be a conversation killer when fact-checking through online search is just a few seconds away. It seems as if our reliance on search engines to some extent constructs complex issues as questions of

"looking-up". Sometimes people control their "urge to search" (Haider, 2017) for information, simply because they do not want to know or because of their awareness of how Google collects information when people are interacting with the search engine. However, Google and its algorithms do not just impose an order of knowledge on people, people also use searching as a way for strengthening their arguments, to confirm their bias. To investigate online searching in this way contributes by enabling an understanding of how search engines are actually used in the full complexity of everyday life.

Searching has become so mundane, that we can also talk about a *mundane-ification* of searching in everyday life. It does not always take an explicit wish to know something in order to begin searching. To search for information, and specifically in computer systems, used to be a professional task for specialised experts. Today, it is something everyone does, on a daily basis. The spread of mobile phones has led to searching being embedded in everyday life to such an extent that it has become invisible and we tend not to think about it (Hillis et al., 2013). When information searching is carried out as a way of passing time, as a playful activity, without any clearly defined instrumental purpose, the need for assessing the credibility of the results is less important. In relation to Marchionini's (2006) distinction between simpler "looking-up" searches and more complex learning and investigation searches, we also need to understand searching as non-task oriented. Google has become part of the information infrastructure of everyday life in a way that makes us less reflective about how the rankings of search results come about and ultimately this changes how we trust technical systems. The complexity of search is hidden behind the interface and its minimalistic search box.

Searching has become one of those ordinary things done during a day that we do not even think about if we are not specifically asked to reflect on it. This mundane-ification of search could be related to information seeking literature on how people accidentally run into information without consciously seeking that information (Erdelez, 1997; Williamson, 1998; Wilson, 1977). Yet, in a time of search engines and social media, encountering and serendipity are algorithmically framed rather than framed by analogue technologies (shelves, books, indexes, spaces and so forth). The algorithms and people's interactions with them constantly re-make the affordances for running into information. The more personalised search engines and social media are, the smaller the chance of running into something that challenges users' earlier searching behaviour (cf. Abel et al., 2011; Feuz et al., 2011; Hannak et al., 2013). When the participants in our study describe assessment of information as less important, they actually let Google's algorithms do the assessment of both relevance and credibility (cf. Hargittai et al., 2010; Sundin and Carlsson, 2016). Using the term of Taraborelli (2008), this could be phrased as "predictive judgements of reliability".

As a discipline, information science has the experience needed for analysing the current search-fication of everyday life (Rieh, 2004; cf. Schroeder, 2015). Yet, often in the literature reasons for searching are, also in everyday life, identified as some kind of problem-situation that has generated a need for information. In contrast, the mundane-fication of search as discussed here, concerns an area which the information science literature on online searching has previously not touched upon. As not least Talja and Nyce (2015, cf. Kari and Hartel, 2007; McKenzie, 2003) have pointed out the 'information need' discourse is not always very well suited for understanding seeking of information. On the other hand, research on people's interaction with information with a

starting point in practices rather than needs has so far not investigated searching (e.g. Cox, 2012; Lloyd, 2010; Pilerot, 2013; Rivano Eckerdal, 2012).

Schroeder (2015) contends that so far information science has not shown to be particularly well suited to study searching for leisure and consumption (cf. Waller, 2011) since searching is traditionally investigated according to how well the results match the problem that initiated the search. We would like to claim it is sometimes even impossible and also not particularly useful to distinguish between leisure and knowledge-related activities in everyday life. To search for knowledge could be regarded as leisure while leisure activities and certainly consumption are often concerned with knowledge. Everyday life is messy, and so is everyday life searching. Instrumental and more pleasure-related searching cannot easily be teased apart. This in turn requires the searcher to be able to reflect on and make decisions on when heightened critical awareness is called for and when the guard can be lowered.

Conclusion

This article elucidates how meaning is assigned to online searching in everyday life. As such, the article seeks to complement earlier information science research. We have in other publications investigated searching in certain domains (Andersson, 2017; Haider, 2017; Sundin and Carlsson, 2016). A challenge for future research is how to also include more of the actual material doings of people in an ethnographic tradition (e.g. Andersson, 2016). In the present study, we managed to make an often-invisible activity such as searching visible with the help of focus group discussions. In the narrative of search-ification of everyday life, the empirical focus has primarily been on participants' descriptions of their searching, while in the narrative of mundi-fication of search, the

focus has been on the participants' reflections on their searching. The invisibility of searching is articulated on different levels. When approaching a search engine, the search box is empty and everything is behind the interface. Entering the first letter opens the box, but only a query term at the time. The complexity is built into the algorithms, which are invisible for most of us. With searching becoming a deeply ingrained part of everyday life the invisibility has been reinforced even more. Searching has for many become a routine so intimately entangled across all kinds of everyday life practices it often seems to just happen. Once regarded as something complex, even a professional practice in its own right, searching is now a mundane activity whose complexity is hidden in various algorithmic systems. Online searching has changed from being a professional, often identity creating, practice into an activity, a moment in a series of activities that make up other practices. Yet of course, this applies also to various professional practices where today online searching - more often than not synonymous with googling - is inserted as just an element amongst others.

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