

# Affective capitalism of knowing and the society of search engine

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## Abstract

**Purpose:** This article discusses the affective premises and economics of the influence of search engines on knowing and informing in the contemporary society. **Design/methodology/approach:** A conceptual discussion of affective the premises and framings of the capitalist economics of knowing is presented. **Findings:** The main proposition of this text is that the exploitation of affects is entwined in the competing market and emancipatory discourses and counter-discourses both as intentional interventions, and perhaps even more significantly, as unintentional influences that shape the ways of knowing in the peripheries of the regime that shape cultural constellations of their own. Affective capitalism bounds and frames our ways of knowing in ways that are difficult to anticipate and read even from the context of the regime itself. **Originality/value:** In the relatively extensive discussion on the role of affects in the contemporary capitalism, influence of affects on knowing and their relation to search engine use has received little explicit attention so far.

## 1 Introduction

Affect makes us not only to act and to work, but also to think about things and know in particular ways. Emotions and passion fuel curiosity (Gherardi *et al.*, 2007) but also function as a source of aesthetic and experiential knowledge (Gagliardi, 2007) and a driver of understanding the world (Knorr-Cetina, 1997). Even if we try to be seemingly rational in how we make decisions, decide what information is good and what we know of things, we are only seldom fully informed to make rational decisions (Hardin, 2009) and even if we would have good information, we often go on emotions.

Much of the intimacy of work discussed by Gregg (2011), emotional intensity of the affective labour associated with our contemporary working life (Ekman, 2012), and the regime of affective capitalism (Sampson, 2012; Negishi, 2012; Parikka, 2013) is tightly intertwined with the use of information within, and with a broad variety of information technologies and new orders of informing ourselves and the others. Globalised contemporary society is characterised by the “central role of knowledge, information, affect and communication” (Schirato and Webb, 2003, 76-77) and an amalgam of cybernetic forms of capitalism that incorporate informationalism and affective capitalism (Peters *et al.*, 2009). Infrastructures, being as complex and serious as digital libraries (e.g. Borgman, 2003) or (at least seemingly) as playful as virtual worlds or Facebook (e.g. Huvila, 2013c; Lim, 2012), or more explicitly or implicitly geared towards knowledge sharing from

specific projects like Wikipedia and Twitter to the entire World Wide Web (e.g. Bowker *et al.*, 2010; Sundin, 2011), have an effect on the ways how we know things.

In spite of the abundance of digital technologies (or perhaps because of that), the conceptually rather basic activity of searching information on the web (Huvila, 2013a), and search engines as its technological infrastructure, have emerged as a hallmark of the contemporary economy of information seeking and knowing. Halavais (2008) declares justly that we are living in a search engine society. As Bowker (2010) and colleagues emphasise by their urge for the need *infrastructure studies*, research for a better understanding of the ways of knowing in the networked environment, the changing socio-technical systems are not merely influencing the ways of storing and retrieving information. On a more profound level, the infrastructures in general, and search engines in particular together, as we argue in this text, with their underlying regime of affective capitalism are influencing the ways of knowing in the contemporary society.

The aim of this conceptual article is to provide entries to deciphering some of the complexities of how search engines are intertwined with the characteristic ways of knowing in the contemporary society. This text draws together theories, perspectives and currently existing largely indicative and anecdotal evidence of the potential role of affects in the landscape of contemporary knowing, and lays ground for future work in this area. Theoretically, the text builds on the framework of the premises of knowing in the contemporary society proposed in the volume *Information Services and Digital Literacy: In search of the boundaries of knowing* (Huvila, 2012) and extends the model by discussing the affective premises and implications of the three themes that according to it, frame the contemporary landscape of knowing. The principal argument of this article is that the exploitation of affects is entwined in the competing discourses of market-essentialism and emancipation, their respective counter-discourses, and embedded in the technologies exploited and designed to advance their explicit and implicit goals. The expectation of affective engagement has turned to a regime with cultural constellations of its own. It shapes the ways of knowing both by means of intentional interventions, and perhaps even more significantly, through unintentional influences. As attached to its hallmark technology, the search engine, affective capitalism bounds and frames our practices of knowing in such ways, which are difficult to anticipate and discern even within the context of the regime itself.

## 2 Knowing about knowing

The contemporary landscape of knowing is characterised by the change of several fundamental premises of how we inform, are informed and eventually, how we come to know things. In the popular science literature, a common tendency has been to ascribe these changes primarily to new emerging technologies and secondarily, to generational differences between baby-boomers, the Google generation, or the generations X, Y and Z (e.g. Tapscott, 2009; Rowlands *et al.*, 2008). There is, however, evidence that might suggest of something else. In-depth studies of changing information behaviour (i.e. how people seek and use information) and practices have suggested that even if generational differences occur, for instance, the Google generation ranges from the youngest Internet users well into the generation X (Rowlands *et al.*, 2008).

Even if information practices differ by age, the social practices of using and being exposed to particular technologies and incorporating them as a part of the everyday pursuits, is perhaps more significant factor that explains the role of particular technologies in our lives. Generational variation would be a too simple explanation to how people knew differently in the past than they do in the contemporary societies. However, similarly to how Dunne (2006) underlines the need of understanding and being critical to the design, and the breadth of the premises and influences of the technological 'electrosphere' we are living in, it is also necessary to be similarly broad and critical to the 'human sphere', its constituents and how it is designed and made in our imagination. When the generational experiences are compared, it is not unconceivable to feel that a generation (born in the privileged parts and circles of the work) that has never experienced the world without Internet search would be more astute to live with it than someone who has been required to learn to use it remembering how things were done before (Huvila, 2012). To emphasise the significance of exposure, White and his colleagues (White and Le Cornu, 2010) have argued for the use of the terms *digital visitors* and *digital residents* instead of referring to digital natives and non-natives.

The significance of exposure is also highlighted by Dutton (2007) who has aptly remarked that the principal impact of the digitisation of information flows has not been on the increase in the absolute amount of information, but rather in how it has revolutionised access to such resources that would have been virtually unreachable only two decades ago. In this latter case the global reach and (theoretical) findability has translated to a sense of an escalating amount of information. At the same time, the proliferation of access does not come without a bias. As, for instance, Introna and Nissenbaum (Introna and Nissenbaum, 2000), Mager (2012), Huvila (2012, 114-121) and the authors of the anthology *Society of the Query Reader* (König and Rasch, 2014) have emphasised, the most popular search engines and the technological paradigm of information retrieval have an immense impact on what really is accessible and what is only theoretically in our reach. Even if Weinberger (2010) remarks that the millionth link in the result list of Google is (only) a million times harder to find than the first one, in practice, that link is impossible to find. Even if many other claims of the balkanisation of Internet can be criticised of being exaggerated (Schumann, 2014), there is no question that information is far from being evenly available.

A reasonable conclusion of a closer look at the attempts to state that principal drivers of the contemporary culture of knowing are merely technological and generational change, is that the both are tightly intertwined to a complex quagmire of social practices and their emotional and motivational framings. Instead of any individual factors, the imbroglia itself premises how things are known. In contrast to earlier highly rationalistic assumptions of human information practices, inspired by the seminal work of Kuhlthau (1993), the recent information studies research has begun to acknowledge the significance of emotions and affect as important constituents of knowing and how people seek and use information (e.g. Nahl and Bilal, 2007; Fourie, 2012). Recently, González-Ibáñez has presented evidence that the initial affective state of an information seeker may be a determining factors of the way how search processes are carried out (nez, 2013). In addition to empirical work on emotions, also theorists like Thellefsen and his colleagues (2014) have suggested that emotions should be given a more prominent role in the conceptual apparatus of information science. According to their semiotic approach, they should be considered together

with information and cognition as the third constituent of communication processes.

In contrast to the earlier, often strictly rational assumptions, Hardin (2009), and on the basis of his theoretical work, Huvila (2012), has argued that the premises of how people know things could be better explained by an economic rather than an absolute form of rationality. The theory is based on two assumptions. Firstly, that all knowing is based on economising with incomplete knowledge, and secondly, that people always have a good reason for their actions even if its goodness would be strictly personal and momentary (Hardin, 2009). For instance, trust on the relevance of search results on a search engine makes sense even if they are apparently only a very partial and selected part of the whole picture. By its face-value, knowing, in general and with the help of search engines, can be seen as a form of affective economy of information and knowledge with a certain resemblance to the affective economy Grossberg recognised in the context of television in the 1980s (Grossberg, 1987). But, as the pivotal features of the current intimacies of working and interacting with information and of knowing are not analogous to the context described by Grossberg, it is necessary to attempt to characterise how people know in the contemporary information culture.

### 3 Two vignettes

Before moving to explore the characteristics of knowing in the contemporary society in detail, two brief vignettes are outlined to provide a context for elucidating the characteristics of the affective capitalism of knowing. They are a poor substitute for an empirical study but could be considered as a first step towards developing a comprehensive research agenda of the affective economies of knowing in, the search engine society.

An illustrative example of the coalescence of emotions, searching and knowledge production are the practices of 'affective searching'. In addition to observations that affects influence how people search information (e.g. Kuhlthau, 1993; Wu, 2015; Bilal, 2006), people also use search engines to cope with their emotions. People hate search by searching information on objects of dislike or, for instance, causing them harm. It is also common to use search box as a place to write down expressions of hatred like "I hate my teacher". Soltas and Stephens-Davidowitz (2015) findings published in New York Times suggest that at least in some cases the occurrence of hate searching and hate crimes are related. Even if it is doubtful that there would be a causal correlation, it is apparent that search engine use is linked to real emotions and hate searching increases the global reach of negative emotions. It is also easier than ever to link up with likeminded people, and to reinforce and expand personal antipathies with an almost endless supply of ideas from the web, conveniently ranked and listed by your favourite search engine.

In addition to the obviously very casual appropriation of search technology for emotional purposes in the case of hate searching, searching, information seeking and affects can be coupled also on purpose. This is the goal of much of the affective information science (Nahl and Bilal, 2007). Google launched and maintained for a while a What Do You Love (WDYL) search service, which provided a custom interface to a range of Google services and allowed users, for instance, to find pictures, videos, books, news and patents related to a themes they 'loved', explore their

object of love in 3D, send email and create alerts on the topic (Bergen, 2011). Even if WDYL can be hardly seen as a serious attempt to capitalise on affections it is indicative of some the possibilities to do so both consciously and without a specific purpose. Shortly after the service was launched, users noticed that if used for searching, it replaced 437 'dirty' words with the word "kitten". Unsurprisingly much of the censored words referred to sex and body parts but also the word God was blacklisted (Bergen, 2011). Even if it is doubtful that this particular piece of active censorship had a real impact, it illustrates the possibilities of search engine providers to consciously manipulate search results similarly to how the once famous so called Google bombs (Bar-Ilan, 2007) exemplified the possibilities of outsiders to 'hack' algorithms that were supposed to provide 'neutral' results. Connected to the broader phenomenon of affective searching, the potential implications of capitalising both economically and politically on the affects become much more apparent.

Another example of the coalescence of affects, knowledge production, sharing and the logic of web searching is the Google Contributor service. It can be described as an algorithmised version of Flattr, a service that allows people to donate money for their favourite web service by a click of a button Flattr (2010-). The service automatically makes small contributions from a monthly pot paid by an individual user to the providers of the affiliated web services he or she is using. Ertzscheid (2014) has aptly criticised that the logic of the service means (in a sense) the end of contributing. The concept of Google Contributor ([www.google.com/contributor](http://www.google.com/contributor)) epitomises the strives for complex easiness and the appropriation of a technology to substitute active conscious choice of making contributions to particular ends. The peculiar feature of the service is not, however, the technology itself. It could have been framed as an automatic, voluntary subscription or debiting service, a solution similar to the automatic collection of road tolls to support digital (information) services. The problem (or geniality, depending on the perspective) of the approach is that instead of marketing it as a voluntary debiting service, Google Contributor is framed using a highly emotional rationale as a part of the affective economy of giving and receiving that is entirely based on the logic of how a search engine functions. Considering the smallness of the suggested (1-3 USD) monthly donations, the monetary investment remains small for the most of the contributors but the framing of the payments as a "way to directly support the people who create the sites you visit each day " ([www.google.com/contributor](http://www.google.com/contributor), 2014-12-12) spirals the affective engagement to become disproportionate to how the receiver of the 'contribution' is described to acknowledge "your support" by showing "a thank you message - often accompanied by a pixel pattern - where you might normally see an ad" ([www.google.com/contributor](http://www.google.com/contributor), 2014-12-12).

#### 4 Knowing in the contemporary society in three acts

Even if anecdotal examples provide some directions to how to conceptualise affective capitalism of knowing, it is apparent that a more robust framework is needed to explore the phenomenon. Huvila has earlier proposed a setup of three themes (Huvila, 2012) for explaining and understanding how knowing is framed in the contemporary search engine society. Instead of attempting to explicate the complexities of knowing in a rationalistic sense traditionally endorsed

in information science research (i.e. that people have information needs and their actions aim to consummate these rational needs), his approach, based on Hardin's economic theory of ordinary knowing (Hardin, 2009), is to see even seemingly irrational information practices as meaningful for those who engage in them. The three cornerstones of the framework are the notions of 1) complex easiness, 2) solvability and 3) appropriation of technologies and infrastructures for informational needs.

Complex easiness refers to an assumption of the primacy of convenience and emancipation as a central premise of the contemporary practices of knowing. Solvability refers to the framing of 'information' as a resource embedded in and available within technological infrastructures. The notion incorporates an assumption that information (in general and these specific resources in particular) provides answers to specific questions. Finally, appropriation refers to an observation of the significance of the contemporary practices of adapting information technologies in different types of uses rather than merely using them for their asserted purposes. In addition, appropriation relates to accepting technologies and their limitations as real boundaries of how and what specific things are knowable, or worth knowing (Huvila, 2012). The significance (or due to the apparent complexity of the phenomenon, to be modest, usefulness) of this particular framework in explicating the affective dimensions of the contemporary practices of knowing is that all of the three themes are very fundamentally affective by their nature, even if this particular aspect of the approach has not been discussed in the literature before.

## 5 It's easy!

The pretence to see knowing as easy seems to apply to an extent that easiness denies us the possibility of a comprehensive understanding of how cultural and technological systems are working. While discussing the convenience of *complex easiness* Huvila (2012) refers to Turkle who argues that the simplification of the use computers and search systems have raised more invisible barriers than they have lowered perceptible ones (Turkle, 2005, p. 163). The concealment of inherent complexity as a trend of both technological and cultural artefacts makes it more difficult to seize the complete picture of how things work, and how exactly we happen to know the things we know. The presence of a similar opaque layer that separates people and technologies is more visible than ever in the context of the use of search engines. The tools we use make extraordinary efforts to provide us with quick answers instead of making us to attempt to figure out answers by ourselves or helping us to understand the premises of these often seemingly simple solutions. As Huvila (2012) argues, we have learned that knowing is (in economic terms) 'cheap' and unnecessary struggles can be avoided.

As a part of their everyday struggles of finding appropriate information, people have been fast in internalising the idea that seeking, searching and using information are not supposed to feel difficult. It should be as easy as to donate automatically, or to find what you (supposedly) love or hate. Library researchers and information behaviour scholars alike have witnessed that people decline to ask help in seeking information in their leisurely, professional and scholarly needs (e.g. Radford and Connaway, 2010; Connaway and Dickey, 2010). The expectations of easiness and the

sensation of the simplicity of technically complicated tasks is in stark contrast to the earlier experience of the 'simple' complexity (Huvila, 2012) of finding information and knowing things. Obtaining information was considered to be a competence to be learned and mastered but once the necessary skills were acquired, the task became if not easy, at least achievable. The contemporary experience of easiness of information seeking and knowing is based on the contrary assumption that knowing should be easy even when the required knowledge would be complicated and the task-in-hand would be intricate and difficult to solve. The emergence of the feeling of informational anxieties (Bawden and Robinson, 2009; Savolainen, 2012), their perceived novelty (Bawden and Robinson, 2009) and the tendencies to relate them to the contemporary, rather than persistent, characteristics of the information environment, strongly indicate that the paradoxes and pathologies are exceptions to the expected easiness of information seeking and use. In contrast to the exceptionality of anxieties, the premise is that the (over)load should provide us with new opportunities, for instance, for personalisation and an unlimited 'choice' of information (Snickars, 2014).

The affective origins of the assumed easiness of knowing can be traced back to the development of search engines, but also to the evolution of the service sector in general. Even if the emergence of self-service as the dominant form of service-delivery was by no means a self-evident or rapid process (du Gay, 2004), the rationale of transferring work from service workers to customers and users has not been seriously challenged in the contemporary society for some time. Self-service has become a norm even in the context of information delivery (Lankes, 2008). Rather, the perceived advantages of self-service are extended to new areas of private and public life from commerce (Dunkel and Kleemann, 2013) and healthcare (Vaart van der *et al.*, 2012) to politics (Eriksson, 2012) and information services both in physical settings at traditional information institutions, such as libraries, archives and museums, and especially in the digital settings online. As Huvila notes, “[t]he web as a whole can be seen as a humongous self-service kiosk of information, and in the minds of its users, us, that of knowledge” (Huvila, 2012). The impression of the cheapness and possibility to quickly store and index everything has not limited itself to searching and finding information. It has led to the bracketing of informing and knowing and, as Snickars (2014) argue, to an assumption that a society of information equates with a society of knowing.

Even if the easiness of knowing could be explained in rationalistic terms using the principle of least effort or by referring to the very real simplicity of accessing information using search engines, the central aspect of easiness is not that all information seeking or knowing would be easy *per se*. Warner (2010) has aptly pointed that even if it is easy and fast to retrieve information, if done (from a rationalistic point of view) properly, the evaluation and selection of information is an enormous task. Finding reliable and high quality information on the object of your hatred is not easy. However, the point of significance is that a search engine *feels* easy, and yet dependable to a degree that very often, it is difficult to see how a search engine could be better. The proposal of Teevan *et al.* (2013) to create a slow search engine with higher quality results feels counter-intuitive from the perspective of ordinary knowing (cf. Hardin, 2009) even if its soundness is easy to agree with from a rationalistic point of view.

Similarly to how the reliance on easy information retrieval techniques as a basis of what we know, is based on an emotional, rather than (in a philosophical sense) rational feeling of knowing and being informed, the evaluation of the outcomes of information seeking are seldom conducted in neutral or (to a degree it is possible) 'objective' terms. Using Hochschild's (1983) terminology, the providers of both technical and non-technical information services conduct emotional labour in how they build their legitimacy on a positive emotional response from the users of the services.

The apparently dichotomous, both imagined and real, complex easiness is easy to see in a negative light. The system exploits both users and service providers in its strive to make complex things feel easy. To a degree they are exploitable, the complex easiness can be argued to exploit also the educational ideals by questioning the premises of informing, learning, and knowing as efforts requiring effort, competence and critical thinking. However, as Vincent (2011) points out, even if Hochschild's rather negative view of the conforming emotional labour process has become somewhat iconic in the field of the study of emotions and work, other researchers including Jenkins et al. (2010), Taylor and Bain (2003), and Stein (2007) have described examples of other types of voluntary, resistant and alienated emotional labour. All of these can be identified also in the context of affective information work. Most of the time, information seekers are voluntarily attached to the complex easiness and conforming to a certain degree when it seems unavoidable. But we are also resisting the ways of how things should be done and how we should find our information. Affective searching is hardly rational but it is still done. We are actively non-conformant to the assumed procedures of using information systems by engaging to actions sometimes described as "informational meta-games" (Huvila, 2013b). As Vincent (2011) posits, in contrast to what Bolton (2005) has suggested, the acknowledgement of the presence of multiple forms of emotional labour does not imply that we would need to abandon Hochschild altogether, and as could be added in the context of this article, not even in the context of information and knowledge related emotional labour.

The complexity of how people are (meta-) gaming their information practices suggests that resisting is not only a question of the necessity of scepticism about trickery and fakery (an important aspect stressed by Seife 2014), or acquiring a simple set of skills to navigate the perils of digital information. In contrast to a complete emotional alienation, a more probable and realistic danger is that the complex easiness leads us to a similar problem Dahler-Larsen (2011) describes in his work on evaluation society. In contrast to a strict pre-control in the beginning, actors are given freedom and autonomy to act as they please (easily and comfortably). This initial freedom is, however, abolished by an *a posteriori* evaluation based on premises established at the moment of evaluation rather than at the time of the action. We are free to seek uncomplicated means to search information and to know but what eventually happens, is that the information and our knowledge are not measured in relation to our efforts at the time (the moment when the sensibility of our actions is decided according to Hardin 2009) but rather to what is 'correct' and useful long after the activity has taken place.



## 6 Yes we can!

Similarly to how easiness is framed by emotions, affective attachment is a cornerstone of the sense of being empowered by search engines and the findability of information, a feeling of the solvability (Huvila, 2012) of things. The framing of 'information' as a resource embedded in and available within the contemporary infrastructures of search incorporates an emotional rather than a rational assumption that information retrieved from the web (in general and these specific resources in particular) provides answers to specific questions. The causality of hate searching and further expressions of hatred is whether the list of results turns from a list of arbitrary websites to a list of answers.

The notion of solvability and its affective dimension can be exemplified by the concept *protocol society* coined by Brooks (2009). According to him, the informationalisation has turned the contemporary society to a society based on sets of instructions that are assumed to provide a solution (Dempsey, 2009). The assumption of solvability like the largely parallel ideology of solutionism discussed by Morozov (2013) have very little rigorous rationality embedded in their perspective of how technologies functions as a premise of (rather than an instrument for) knowing (for solvability) and human action (for solutionism). Similarly to solutionism and in contrast to the complex easiness, the notion of solvability refers to an emotional expectation that our territory of knowing is also a solution space instead and in addition to being a comfort zone.

The rudiments of solvability, as the notion is discussed by Huvila (2012), can be traced back to the moderate forms of techno-utopianism and colloquial, in most cases prevalently positive experiences of possibilities and benefits of technology adaption (Tredinnick, 2008). To a degree, as Nolin (2010) has underlined, the predominant ideologies of the Internet incorporate a very real aspect of empowerment. The sensation of emancipation has not stopped to principal technologies of Internet but has spread much wider to how people feel about the colloquial premises of knowing and getting informed. The experience implies that solutions are milliseconds rather than days, weeks or years away even if it contradicts with research on learning and knowledge creation that emphasises the importance of time (e.g. Walberg, 1988; Nonaka and Takeuchi, 1995). In spite of contrary claims, digital tools have not been shown to reduce the time required for learning (Cook *et al.*, 2010) nor has the technical possibility of accessing information from around the world (Dutton, 2007) helped us to achieve any real simplification in the process of how we make decisions (Fioroni and Titterton, 2009, 89). The rapid diffusion of the googlified idea of how information is sought and found and its turning to a basis of the expectations on the functionality of a broad variety of search systems has not only influenced searching but also the perception of results as useful, good-enough information that more or less directly translates to knowledge. A search interface for seeking what you love makes no sense if the results would not be, at least, close to being what you literally feel you love. It is difficult to abandon the sensation of the relevance of directly accessible information even if there is plenty of evidence of and good arguments for the biased nature of the results we get (e.g. Mager, 2012; Noble, 2013; König and Rasch, 2014). As Connaway and Dickey (2010) have remarked, it makes perfect sense to think in our contemporary information environment that search-engine-like library catalogues and databases are expected to provide

similar 'answers' as the web search engines themselves. For a good reason, as with consumer goods in general (Fioroni and Titterton, 2009, 89), people expect that the functionality of the search-engine-like information systems as knowledge providers can be taken as granted. As knowers, we feel less need to be educated (Wilder, 2005).

However, in contrast to its self-evidence, the sensation that things are solvable is based on a fusion of an illusion of the relevance of the information we are able to retrieve from the web and our non-existent capability (described by Hardin 2009) to acquire complete information to support our decision-making. A search system or information repository provides answers and the outcome of information seeking is a solution to a task in hand even if it would be, at the most, a relatively arbitrary set of half-relevant ingredients of a possible solution.

In addition to the changing frames of how things are knowable, solvability and the assumed mechanisms of how contemporary technologies produce solvability have also other implications. Solvability has framed information as a part of an economic value-structure described by Hearn (2010) as a reputation economy. According to her, people are engaged in a reputation economy within which the value of an individual is determined by various rankings in online services (Hearn, 2010). In a search-engine society, the ranking of information in popular digital information services determines its value and moreover the high reputation of the highly ranked information gives it a status of being *the* answer. With Google Contributor, the answer is not only an answer but also something the searcher ends up with paying for.

A third implication of affective nature of the assumption of being an empowered knower relates to the change of the perception of the acceptability of how information is used, shared and collected by individuals and organisations. Both the colloquial sensation of the benefits of the digitisation of information and the ways of how the empowering capabilities of shared and ubiquitous digital information services are advocated contribute to an idea that the change in the ways of knowing is for good, for answers and for solving problems. It becomes easier to accept that the behavioural and cultural traits, including 'participation', sharing and trust, associated with digitality contribute to the same virtuous goal. For instance, global injustice (Dyson, 1998), public institutions (Casey and Savastinuk, 2007), political culture (Hindman, 2008), information (Bruns, 2008) and business (Warr, 2008) among others, have been suggested to be revitalised and enhanced by 'participation' even if the evidence to support these claims is not always conclusive (e.g. Dimitrova *et al.*, 2014; Rowlands *et al.*, 2008).

Even if it might seem evident that the major weakness of the experience that 'we can' is the premise that the contemporary informational comfort zone is a solution space, in the light of Hardin's (2009) theory of the economy of ordinary knowing, it is not quite as nonsensical starting point as it might seem. The problem could be rather that the affective rationale of solvability is not produced necessarily as an information seeker would expect. Similarly to how (digital) participation has different connotations than (non-digital) participation, the use of reputation (as an antecedent of trust and relevance in how we evaluate information in everyday life settings, e.g. Tennie *et al.*, 2010; Savolainen, 2011) as a social rather than sociodigital notion, differs remarkable from the algorithmic ranking of search results, and the 'reputation' of web sites. Even if links between web pages still are a major invisible premise of determining relevance on the net, after the

initially revolutionary impact of PageRank (Pasquinelli, 2009), the reputation based algorithms have steadily given way to a (re)introduction of traditional information retrieval techniques as the most significant instrument for providing users with 'relevant' 'answers' (Vakkari, 2014). Even if this discrepancy between the colloquial observations and algorithmic making of 'answers' might remind us of White's (2008) fundamental question of the relative significance of attributes and relationships in the emergence of the social world, the major implication of solvability and its intimacy with reputation economy is not related to the relative goodness or badness of relationships or networks. As Pasquinelli (2009) reminds of the major danger (or challenge) of the hegemony of Google, it is more of a question of whether it is known, how the reputation and participation is being produced; whether information seekers know it, or that is it known even by those who develop and design the algorithms that source us with the rankings. Further, on an even more profound level, the question is how the relation between information seekers and their sources is explained. Even if the relation would not be truly rational in philosophical (Huvila, 2012), there is a difference between a relaxed rationalism of everyday life and emotional solvability, an affective feeling of how things should be known.

## 7 This is how it is!

The third and final theme proposed as a part of the framework of Huvila (2012) is *appropriation*, a concept borrowed from the social studies of technology literature (SST) (Orlikowski, 1992; Mackay and Gillespie, 1992). In the context of knowing, appropriation refers to contemporary practices of adapting information technologies like search engines in different types of unanticipated uses rather than utilising them merely for their asserted purposes (Huvila, 2012). Even if there are many limiting factors that are (either tangible or abstract) similarly unavoidable, SST scholarship has convincingly shown that in addition to inescapable constraints technologies and ideas are *made* to do things by their users (Ramiller and Chiasson, 2008; Twidale *et al.*, 2008). Technologies and other 'things', including knowledge (e.g. Rogoff, 1995; Billett, 1995, 1998) and information (Huvila, 2015), are appropriated when they are taken into use in a particular context. In many cases appropriation, and especially unanticipated forms of use, have been a major factor, which has made technologies and services successful (e.g. Dourish, 2003; Krieger, 2014). 'Participation' is a pertinent aspect of the contemporary information culture that is not given or made real by anything else than by how it has been made to become an element that frames the ways of knowing in the society. Similarly, there is nothing self-evident in that our predominant contemporary technological aid of knowing (or, of feeling, as affective searching shows) is a 'search engine'.

A noteworthy aspect of the appropriated frames of knowing, largely neglected by Huvila (2012), is that they tend to be more emotionally laden and somewhat counter-intuitively, more constraining than any technical constraints. Even if we are not, perhaps, used to think of search engines as similarly emotionally laden instruments of identity construction like cars or mobile telephones (cf. Kline, 2003), there are indications that people are using search engines (both specific ones and in general) to avoid shame (due to bashfulness, Huvila, 2011) and to look good (Huvila, 2013a) in a

manner that reminds of how certain consumer goods and services are used for similar purposes. One way of explaining the strength of appropriated and imagined frames is to see them as Borgmann (2010), as a consequence of a sense of disorientation and an ache for the confines of earlier information environments. The distancing of the technologies from our comfort-zone can also be explained by interpreting the appropriation as a form of a (metaphorical) cargo-cult (McDowell, 1988; Lindstrom, 2004) and a dominance of, using the terms of Adler (2001), a “traditionalistic blind” rather “modern reflective” form of trust. Instead of attempting to understand exact mechanisms of how search engines, digital information services and knowing work in the contemporary society, (even if we would be probably reluctant to admit it) we are appropriating technologies in our own cargo-cult as if they were gifts from a distant god (cf. McDowell, 1988). Search engines have become digital oracles that provide us answers, and we do not feel obliged to understand how we end up knowing what we know, or how we pay (or “contribute” as in Google Contributor) for that information.

Another conceivable reason for our inclination to accept appropriated constrains as stronger than technical ones is our apparent emotional attachment to complex easiness and solvability. Even if much of the acceptance of new technologies can be explained (and is often explained by the users, e.g. Vishwanath and LaVail, 2012) as (semi-)rational activity of maximising usefulness and minimising effort (e.g. Venkatesh *et al.*, 2003; Houkes and Pols, 2013), emotional factors have been demonstrated to play a significant role as outcomes (Dey *et al.*, 2011) and premises (Dillon, 2001) of, and sustaining factors relating to, technology use and usability (Vishwanath and LaVail, 2012). In the context of knowing, the lure of the real abundance of ‘knowledge’ and the bias of believing in its infinity, are equally difficult to spurn as the rationality of other personal choices (cf. Vishwanath and LaVail, 2012). As long as search engines conveniently provide us with reasonably good answers, it feels counterintuitive to be too critical of their shortcomings. The reasonable goodness of answers is determined less by a purely rational choice and meticulously analysed evidence than a personal feeling of adequateness. Morville and Callender (2010, p. 51) argue that “[t]he [search] box and its controls shape how we search, and what we find changes what we seek”. In practice, it is not only that search box (or rather, how we feel that a search box should function) influences the ways how we search, and eventually find things, but more so about the economics of how we know about things in the contemporary society.

## 8 Economies of the affective capitalism of knowing

It is apparent that the three themes discussed so far are only one of many possible approaches to discern and frame the affective dimensions of search engine use and its implications to knowing in and for the contemporary capitalism. However, even if the approach would not provide a comprehensive picture of the entanglement of these three aspects of the contemporary information culture, or the culture as a whole, they help to juxtapose the bonds between affects and knowing, the intensity of emotional (rather than rational) attachment to search engines as a determinant of how things should be knowable, and the intricacy of the rapport between the economics of knowing and that of the capitalist regime within which search engines are developed.

It is not difficult to see that the affective dimensions of the experiences of easiness, empowerment-in-knowing and technology go beyond specific individual and collective pursuits of how people know in the contemporary society. Thinking about the vignettes described earlier in this article, it is apparent that an instance of hate searching is not merely an isolated question of using a one-time outlet for expressing feelings. Similarly, the effortlessness of Google Contribute is not a feature of that specific service only. It is apparent that there is something systemic about the regimes that frame these practices. What is the 'contemporary society' characterised by these themes and what is the heart of the 'new' regime of knowing? It is hardly surprising that the commercial providers of the largely gratis information services that underpin much of the colloquial knowing in the contemporary society have been quick to capitalise on the changing information and knowledge practices. The value of information seems to be decreasing, as Snickars (2014) suggests, but instead of applying to all information and all value, it looks like that the inflation is limited to individual informational actions (like hate searching) and pieces of information (minimal automated payment for 'information' on a visited webpage), and their anticipated, rather than practical, value if put in use. When the sensation of the value of information we possess, or can readily access, diminishes, the possibilities to capitalise on aggregates of nearly meaningless information increase.

In addition to our personal sense of the value of information, the shift from a feeling of relative scarcity to a relative abundance has quickly disrupted many of the earlier business models of the information and knowledge industry. Even if Google communicates its mission as to provide access to world's information, its business (of capitalising on selling advertisements to make certain content even more easily findable) relies on a feeling of empowerment and a sensation of being able to access all information, instead of actually accessing it. Even if we have difficulties to acknowledge it, we, as users of these information services, are *de facto* exploited as we are disclosing information about ourselves, our preferences, hate objects and practices to search companies in exchange for 'information'. As Ahmed underlines, "emotions do things [...] through the very intensity of their attachments" (Ahmed, 2004, 119). Even if the business of the gratis search might formally be conceptualised as a business of profiling and selling advertisements, from the users' point of view, it is difficult to frame the engagement in terms of exchanging information, which has monetary value. What counts in the contemporary affective economy of knowing, is the affective attachment to a sensation of being able to know. It is the sensation that might make someone to make a 'contribution' to a website or to use a search engine as a channel for verbalising positive and negative feelings. The capitalist logic of search business is to provide us a sensation of being able to know in exchange for them to be able to capitalise on data on our preferences and habits. From a similar perspective Grossberg (1987) took on television, the affective capitalism of knowing can be framed as another affective economy that has very little to do with rational knowing but in contrast, very much with the economy of advertising business.

Similarly to solitary searching, the expectation of voluntary participation and the non-voluntary forms of engagement in the refinement of search results do not only give opportunities to engage oneself in an exchange of information and ideas – in a collective endeavour of knowing – but ties people into a relationship with the partners they are engaging with. This can happen via a simple

web search on a particular person or an object of love (as in WDYL), or during a longer and more complex online interaction (e.g. Balick, 2014). The engagement and exchange of information is linked to the affective value creation in the emerging 'communities', or as Caliendo (2012) argues, in the dynamics and frictions of converging and diverging discourse in the emotional labour of emerging *web tribes*. In many cases the participation requires emotional engagement and investment, in some cases unilaterally or unbalanced (e.g. Hochschild, 1983, or in the two vignettes) but in many cases from both parties to a degree that the goes well beyond a simple task of knowing and sharing (e.g. in Munro, 2014). The enhanced levels of engagement may be the ultimate goal of sharing the intellect, but when it is not, it can raise unwanted barriers and increase the emotional investment to an unacceptable level. In an essentially non-voluntary participation by the means of automated disclosure of data on personal habits, preferences and dislike, a major investment in nice and useful search results comes without consent. As Harvey reminds, "[s]haring in the presence of money and sharing in its absence are two entirely different forms of economic morality" (Harvey, 2014). The presence of money turns a social exchange into a monetary one, and an affective engagement in the exchange to a financial exploitation even if the exploited party would accept the transaction. Even if Scholz (2014) stresses that he does not "want to be turned into a wheel on the bandwagon of a soon-to-be billionaire incumbent" as a part of engaging in the 'sharing economy', it is not easy to navigate this perplexing merger of affective and shrewd, monetary, altruist and collective interests. In the contemporary "'sharing economy' fallacy" (to quote Harvey, 2014) the exchange and potentially unacceptable levels of emotional investment are easily disguised in the altruist ideals of 'sharing for caring' and purported collectivism.

Management, not only exchange and sharing of the disclosure and concealment, of personal information, is another aspect of the potential affective imbalance of investments related to search engine use. Media coverage has an inclination to frame personal information as a commodity (Fornaciari, 2014) even if such a framing could be seen as a highly counter-intuitive to the colloquial experience of an individual whose personal information is discussed. It is relatively easy to see many benefits and few disadvantages in engagement-through-information and the commodification of unspecific personal information when abstract individuals disclose their data for statistical analyses and personalisation of generic services. It does not matter if a search engine knows that you hate your teacher, or that you visit and automatically donate to a specific political site. It is easy to be 'rational', ignore emotions and agree with Nissenbaum (2010) of the primacy of ensuring appropriate use instead of aiming at a complete non-disclosure. However, when the discussion is directed to a specific individual, the appearance of whose information is being discussed, the difficulty of anticipating what is appropriate, and the conceivable drawbacks of engagement become much more tangible, and the calculus of the economics of sharing and knowing become not only a highly emotional but also a paradoxical question. Even if might be of minor significance that an individual pupil hates her teacher, it becomes an issue if that expression of hatred influences how the teacher is portrayed on the web. Similarly, a visit, either accidental or made out of curiosity, to a controversial highly-ranked website might not be quite as insignificant if you automatically make a donation to its owner, either by using Google Contributor, or by watching an advertisement.

## 9 After emancipation

The changing economies of knowing, commercialisation of its principal infrastructures, and the pervasive exploitation of emotional appraisal of what is good and enough, have consequences. Recognition of the increasingly (as it seems) affective nature of the premisory assumptions and practices of knowing (like the notions of complex easiness, solvability and appropriation originally discussed by Huvila, 2012) broadens the perspective of what the consequences and their implications might be. Affects do not only limit or frame our knowing in anecdotal instances of everyday life. Even if knowing is more than emotions, an increasing exploitation of affects is likely to lead to the emergence of an entire thicket of boundaries of what is, and becomes, knowable to us. The emergence of these boundaries is not given as it is not granted that the notions of complex easiness, solvability or appropriation are the most significant aspects of how search engines are entangled in the future of knowing. What the evidence can be argued to suggest is, however, that affects and the three themes can be useful to take into account in developing search systems and assessing the consequences of their use.

The amount of affective labour, the personal emotional effort, required and invested to staying comfortably informed in the contemporary society puts pressure on us as individuals. When the premises of knowing are increasingly personal and emotional, it is more difficult to let go and rely on others' knowledge and expertise. Snickars (2014) has convincingly argued that search providers capitalise on being a partial culprit and simultaneously positioning themselves as a remedy to the overload of information. By providing access to nearly unlimited amount of information, they can simultaneously justify and legitimise their mission as organising and providing access to it. Even if an (over)load (i.e. a certain excess of digital information) is irrefutably real, positing it as a problem and claiming that search engines are a panacea, moves the question to the level of affects: an experience of overload meeting a sensation of emancipation through a technology. Do we really need a search engine to provide us an overview of information related to things we love, or do we need an automatic service to help us to make fair donations? The affective rather than merely technical or economical (in the sense of Hardin 2009) relation to search engines, the sensation of the ease of their use, and our propensity to assume (or feel) that knowing is a solvable, rather than a wicked problem means that we have become emotionally dependent on these mediators and shapers of knowledge. They are difficult to permeate and control, and they follow their own forms of market logic in the contemporary society, which has indeed become a search engine society as Halavais (2008) has argued.

The consequence of the raise of an affective regime permeates not only the core of (affective) capitalism but influence also semi or non-capitalist projects of knowledge like Wikipedia that operate within the same capitalist system of knowing, and cannot be entirely independent of the logic of the deeply commercial web (Lund, 2015), of the commercialised technical infrastructures that enable Wikipedia to function, search engines that make its contents findable, or web as a 'meta-archive' (Allen-Robertson, 2013) that functions as a source of the bulk of its contents (Huvila, 2010). The consequence might not be a precisely similar state of *affective inequality* discussed by

Lynch et al. (2009), deprivation of the possibility to develop supportive affective relations but it is not difficult to see a massive inequality in how people become affectively attached and reliant on a technological infrastructure that is incapable of supporting a human relation with us. A search engine provides unquestioning support to our emotional pursuits of love and hate but even if filtered of 'dirty' words, it does not take responsibility of its consequences. The problem appears as especially tangible in the light of the impossibility stressed by McDowell (2009), to completely escape the physical even within infrastructures that are by definition non-physical.

Virno (2004) has written about the commodification of communication and cognitive habits when the sharing of the intellect happens within a private non-public sphere and translates into an "unchecked proliferation of hierarchies". The recent disclosures of the national and corporate surveillance of individuals, what we love, hate and sponsor, can be explained from the premises of Virno as a commodification of the access to information, and ultimately, that of knowing. Private sharing of intellect between governments and corporate entities is not new *per se* but it has a capability to have broader implications when surveillance thickens and penetrates even the tiniest aspects of individual and collective life, and when the possibility to find spaces of unrestricted public intellect and sharing are lost.

The negative consequences of the private ownership of knowledge have already been observed in the research field of information retrieval (Callan and Moffat, 2012). At the moment, large corporations have essentially an unlimited access to both retrievable information and data on how people search. All of this is data is private property of these corporate actors and for obvious commercial reasons, not quotable. At the same time, the open research community is largely lacking comparable data sets and unable to conduct similar experiments. Even if the problems related to the proprietary ownership of data might be particularly visible in fields such as information retrieval research, the inability to understand how we, both as individuals and collectives, behave, get information and eventually become to know things is an issue that is of public concern. It is a well-known fact that people tend to have difficulties to know how they know (Bouwman *et al.*, 1987). If we are divested of the possibilities to go back to the premises of our knowing, the economy of how we know remains hidden from us. We would be unable to say why a particular photograph represents something we love, or how we ended up donating money to a site we entered by pointing to a link in a list of search results. It becomes impossible to say what is the role of affective labour in the process, how we are appropriating the technologies, whether we are able to resist and exploit them, and in the end, what is characteristic to the impact of the affective capitalism of knowing in the contemporary society.

The culmination of the exploitation of affective aspects of knowing in the context of search engine use can be debated from the perspective of Arendt and her relation to information work as a part and premise of the *action*, the premise of being a human-being (Arendt, 1998). A pessimistic scenario could imply that an emotional emancipation to the cosiness of searching could lead us to the loss of our humanity. This is an exaggeration but it might be possible to argue that there are signs of the negative effects of emotional attachment to the easiness of information retrieval, solvability of informational problems, and consequently, of the ease of knowing things. Knowing, or parts of it, could lose its meaning as a desire, an end that motivates itself (cf. Gherardi, 2003)



and propels the pursuits of knowing more and better. An opposite, optimistic scenario could follow the perspective of Dunne (2006), who sees the aesthetic, and in a sense affective, agency of post-optimal objects and affective potential of objects as a way of exploiting these objects to serve our (their users') purposes.

In spite of how we see the relative probability of the actualisation of utopian or dystopian scenarios, it is apparent that we should engage in critical design (Bardzell and Bardzell, 2013) of not only of the technologies but also of the social practices of knowing, and follow Vincent's (2011) urge to make an effort to try to understand and support emotionally skilled 'insiders', people with a capability to make best of their inevitable affective labour, and to ameliorate inequitable and alienating outcomes also in the contemporary context of knowing, increasingly framed by the omnipresence of search engine. This type of critical design should be incorporated to guide information literacy training, development of search systems and other societal infrastructures of information. Taking affects seriously means to actively work against dystopian scenarios and work towards developing search systems and alternative infrastructures, educating their users and regulating the economics of knowing to reach positive outcomes. Similarly to how Konings (2015) suggests that a sustained effort of trying to understand the contemporary processes of meaning-making and their underpinnings is more fruitful than blind critique of the neo-liberal economy, a comparable engagement with the both affective and non-affective premises of knowing helps us to understand search engines, their implications and opportunities better than a plain denouncement of their right to exist. Towards this end, a necessary step forward for information science research would be to continue to explore the affective underpinnings of information behaviour and practices, to be more sensitive of the intricate relation of knowing and information use, and the political and economic consequences and premises of all information activities. Comprehensive studies of explicitly emotion related information activities, such as affective searching, would take us towards to that end but an even more important step would be to start to take seriously the diversity of affective and economic aspects of all types of professional and non-professional, mundane and unusual practices of using information technologies to inform us.

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## References

- Adler, P. S. (2001), "Market, Hierarchy, and Trust: The Knowledge Economy and the Future of Capitalism," *Organization Science*, Vol. 12, No. 2, pp. 215–234.
- Ahmed, S. (2004), "Affective Economies," *Social Text*, Vol. 22, No. 2, pp. 117–139.

- Allen-Robertson, J. (2013), *Digital Culture Industry a History of Digital Distribution*, Palgrave Macmillan, New York.
- Arendt, H. (1998), *The Human Condition*, University of Chicago Press, Chicago, 2nd ed.
- Balick, A. (2014), "The ultimate private/public partnership: The extensions of the self in the world of the virtual gaze," in Bainbridge, C. and Yates, C. (Eds.), *Media and the inner world : psycho-cultural approaches to emotion, media and popular culture*, Palgrave Macmillan, Basingstoke, pp. 153–167.
- Bar-Ilan, J. (2007), "Manipulating search engine algorithms: the case of google," *J of Inf, Com & Eth in Society*, Vol. 5, No. 2/3, pp. 155–166.
- Bardzell, J. and Bardzell, S. (2013), "What is "Critical" About Critical Design?" in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, New York, NY, USA, CHI 13, pp. 3297–3306.
- Bawden, D. and Robinson, L. (2009), "The dark side of information: overload, anxiety and other paradoxes and pathologies," *Journal of Information Science*, Vol. 35, No. 2, pp. 180–191.
- Bergen, J. (2011), "Google's what do you love search replaces 437 dirty words with kittens," *Geek.com*, available at: <http://www.geek.com/geek-cetera/googles-what-do-you-love-search-replaces-437-dirty-words-with-kittens-1407771/> (accessed at 31 may 2016).
- Bilal, D. (2006), "Children's information seeking and the design of digital interfaces in the affective paradigm," *Library Trends*, Vol. 54, No. 2, pp. 197–208.
- Billett, S. (1995), "Workplace learning: its potential and limitations," *Education + Training*, Vol. 37, No. 5, pp. 20–27.
- Billett, S. (1998), "Appropriation and ontogeny: identifying compatibility between cognitive and sociocultural contributions to adult learning and development," *International Journal of Lifelong Education*, Vol. 17, No. 1, pp. 21–34.
- Bolton, S. C. (2005), *Emotion management in the workplace*, Palgrave Macmillan, Basingstoke.
- Borgman, C. (2003), *From Gutenberg to the Global Information Infrastructure: Access to Information in the Networked World*, The MIT Press, Cambridge, MA.
- Borgmann, A. (2010), "Orientation in technological space," *First Monday*, Vol. 15, No. 6-7.
- Bouwman, M. J., Frishkoff, P. A. and Frishkoff, P. (1987), "How do financial analysts make decisions? A process model of the investment screening decision," *Accounting, Organizations and Society*, Vol. 12, No. 1, pp. 1–29.
- Bowker, G. C., Baker, K., Millerand, F. and Ribes, D. (2010), "Toward Information Infrastructure Studies: Ways of Knowing in a Networked Environment," in Hunsinger, J., Klastrup, L. and Allen, M. (Eds.), *The international handbook of internet research*, Springer, Dordrecht, pp. 97–117.
- Brooks, D. (2009), "The Protocol Society," *The New York Times*, p. A41, available at: <http://www.nytimes.com/2009/12/22/opinion/22brooks.html> (accessed at 31 may 2016).
- Bruns, A. (2008), *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage*, Peter Lang, New York.
- Caliandro, A. (2012), *Il lavoro affettivo dei consumatori volto alla co-creazione di valore sui social media: un'indagine netnografica*, Ph.D. thesis, Università degli Studi di Milano, Milano.
- Callan, J. and Moffat, A. (2012), "Panel on Use of Proprietary Data," *ACM SIGIR Forum*, Vol. 46, No. 2, pp. 10–18.
- Casey, M. and Savastinuk, L. (2007), *Library 2.0: A Guide to Participatory Library Service*, Information Today, Medford, NJ.
- Connaway, L. S. and Dickey, T. J. (2010), "The Digital Information Seeker: Report of the Findings from Selected OCLC, RIN, and JISC User Behaviour Projects," JISC and OCLC Research, Bristol and Dublin, OH.

- Cook, D., Levinson, A. and Garside, S. (2010), "Time and learning efficiency in Internet-based learning: a systematic review and meta-analysis," *Advances in Health Sciences Education*, Vol. 15, No. 5, pp. 755–770.
- Dahler-Larsen, P. (2011), *The Evaluation Society*, Stanford University Press, Stanford.
- Dempsey, L. (2009), "The information, er, protocol society..." *Lorcan Dempsey's Weblog*, available at: <http://orweblog.oclc.org/archives/002038.html> (accessed at 31 may 2016).
- Dey, B., Newman, D. and Prendergast, R. (2011), "Analysing appropriation and usability in social and occupational lives," *Information Technology & People*, Vol. 24, No. 1, pp. 46–63.
- Dillon, A. (2001), "Beyond usability: process, outcome and affect in human-computer interactions," *Canadian Journal of Library and Information Science*, Vol. 26, No. 4, pp. 57–69.
- Dimitrova, D. V., Shehata, A., Strömbäck, J. and Nord, L. W. (2014), "The Effects of Digital Media on Political Knowledge and Participation in Election Campaigns: Evidence From Panel Data," *Communication Research*, Vol. 41, No. 1, pp. 95–118.
- Dourish, P. (2003), "The Appropriation of Interactive Technologies: Some Lessons from Placeless Documents," *CSCW*, Vol. 12, No. 4, pp. 465–490.
- du Gay, P. (2004), "Self-Service: Retail, Shopping and Personhood," *Consumption Markets & Culture*, Vol. 7, No. 2, pp. 149–163.
- Dunkel, W. and Kleemann, F. (Eds.) (2013), *Customers at Work : New Perspectives on Interactive Service Work*, Palgrave Macmillan, Basingstoke.
- Dunne, A. (2006), *Hertzian tales : electronic products, aesthetic experience, and critical design*, MIT Press, Cambridge, MA.
- Dutton, W. H. (2007), "Reconfiguring Access to Information and Expertise in the Social Sciences: The Social Shaping and Implications of Cyberinfrastructure," in *Presented at the 3rd International Conference on e-Social Science (7-9 October 2007, Ann Arbor, Michigan, US)*, available at: <http://www.ncess.ac.uk/events/conference/2007/papers/paper152.pdf> (accessed at 31 may 2016).
- Dyson, E. (1998), *Release 2.1 : a design for living in the digital age*, Broadway Books, New York.
- Ekman, S. (2012), *Authority and autonomy : paradoxes in modern knowledge work*, Palgrave Macmillan, Houndmills, Basingstoke, Hampshire; New York.
- Eriksson, K. (2012), "Self-service society: Participative politics and new forms of governance," *Public Administration*, Vol. 90, No. 3, pp. 685–698.
- Ertzscheid, O. (2014), "Google Contributor : le Terminator de la contribution," *affordance.info*, available at: [http://affordance.typepad.com/mon\\_weblog/2014/11/funding-the-web.html](http://affordance.typepad.com/mon_weblog/2014/11/funding-the-web.html) (accessed at 31 may 2016).
- Fioroni, M. and Titterton, G. (2009), *Brand storming : managing brands in the era of complexity*, Palgrave Macmillan, Basingstoke.
- Flattr (2010-), *Flattr - Social microdonations*, available at: <https://flattr.com> (accessed at).
- Fornaciari, F. (2014), "Pricey privacy: Framing the economy of information in the digital age," *First Monday*, Vol. 19, No. 12.
- Fourie, I. (2012), "Understanding information behaviour in palliative care: arguing for exploring diverse and multiple overlapping contexts," *Information Research*, Vol. 17, No. 4.
- Gagliardi, P. (2007), "The collective repression of 'pathos' in organization studies," *Organization*, Vol. 14, No. 3, pp. 331–338.
- Gherardi, S. (2003), "Knowing as desiring. mythic knowledge and the knowledge journey in communities of practitioners," *Journal of Workplace Learning*, Vol. 15, No. 7/8, pp. 352–

- Gherardi, S., Nicolini, D. and Strati, A. (2007), "The passion for knowing," *Organization*, Vol. 14, No. 3, pp. 315–329.
- Gregg, M. (2011), *Work's Intimacy*, Polity, Cambridge.
- Grossberg, L. (1987), "The In-Difference of Television," *Screen*, Vol. 28, No. 2, pp. 28–46.
- Halavais, A. (2008), *Search engine society*, Polity, Cambridge.
- Hardin, R. (2009), *How do you know? : the economics of ordinary knowledges*, Princeton University Press, Princeton.
- Harvey, J. (2014), "Renting isn't lending: the 'sharing economy' fallacy," *The Conversation*, available at: <http://theconversation.com/renting-isnt-lending-the-sharing-economy-fallacy-27084> (accessed at 31 may 2016).
- Hearn, A. (2010), "Structuring feeling: Web 2.0, online ranking and rating, and the digital reputation economy," *Ephemera: Theory and Politics in Organization*, Vol. 10, pp. 421–438.
- Hindman, M. S. (2008), *The myth of digital democracy*, Princeton University Press, Princeton, N.J.; Woodstock.
- Hochschild, A. R. (1983), *The managed heart: Commercialization of human feeling*, University of California Press, Berkeley.
- Houkes, W. and Pols, A. (2013), "Plans for Modeling Rational Acceptance of Technology," in Michelfelder, D. P., McCarthy, N. and Goldberg, D. E. (Eds.), *Philosophy of Engineering and Technology*, Springer Netherlands, Vol. 15, pp. 291–303.
- Huvila, I. (2010), "Where does the information come from? Information source use patterns in Wikipedia," *Information Research*, Vol. 15, No. 3.
- Huvila, I. (2011), "'I asked my Mum, but' and other cases of unsuccessful information seeking by asking," *Information Research*, Vol. 16, No. 1.
- Huvila, I. (2012), *Information Services and Digital Literacy: In search of the boundaries of knowing*, Chandos, Oxford.
- Huvila, I. (2013a), "In Web search we trust? Articulation of the cognitive authorities of Web searching," *Information Research*, Vol. 18, No. 1.
- Huvila, I. (2013b), "Meta-games in information work," *Information Research*, Vol. 18, No. 3, p. paperC01.
- Huvila, I. (2013c), "Sorting the metaverse out and how metaverse is sorting us out," in Power, D. and Teigland, R. (Eds.), *The Immersive Internet: Reflections on the Entangling of the Virtual with Society, Politics and the Economy*, Palgrave MacMillan, Basingstoke, pp. 192–203.
- Huvila, I. (2015), "Situational appropriation of information," *Aslib Journal of Information Management*, Vol. 67, No. 5, pp. 492–504.
- Introna, L. D. and Nissenbaum, H. (2000), "Shaping the Web: Why the Politics of Search Engines Matters," *The Information Society*, Vol. 16, No. 3, pp. 169–185.
- Jenkins, S., Delbridge, R. and Roberts, A. (2010), "Emotional management in a mass customised call centre: examining skill and knowledgeability in interactive service work," *Work, Employment & Society*, Vol. 24, No. 3, pp. 546–564.
- Kline, R. (2003), "Resisting consumer technology in rural america: The telephone and electrification," in Oudshoorn, N. and Pinch, T. J. (Eds.), *How users matter : the co-construction of users and technologies*, MIT Press, Cambridge, MA, pp. 51–66.
- Knorr-Cetina, K. (1997), "Sociality with objects: Social relations in postsocial knowledge societies," *Theory, culture & society*, Vol. 14, No. 4, pp. 1–30.
- König, R. and Rasch, M. (Eds.) (2014), *Society of the Query Reader : Reflections on Web Search*, Institute of Network Cultures, Amsterdam.

- Konings, M. (2015), *The Emotional Logic of Capitalism: What Progressives Have Missed*, Stanford University Press, Stanford.
- Krieger, M. (2014), "Why Instagram Worked : A co-founder looks back at how a stalled project turned into a historic success," *Backchannel (Blog)*, available at: <https://medium.com/backchannel/why-instagram-worked-45dbfeaa37c8> (accessed at 31 may 2016).
- Kuhlthau, C. C. (1993), *Seeking Meaning: A Process Approach to Library and Information Services*, Ablex, Norwood, NJ.
- Lankes, R. D. (2008), "Trusting the Internet : new approaches to credibility tools," in Metzger, M. J. and Flanagin, A. J. (Eds.), *Digital media, youth, and credibility*, MIT Press, Cambridge, MA.
- Lim, M. (2012), "Clicks, Cabs, and Coffee Houses: Social Media and Oppositional Movements in Egypt, 2004–2011," *Journal of Communication*, Vol. 62, No. 2, pp. 231–248.
- Lindstrom, L. (2004), "Cargo Cult at the Third Millennium," in Jebens, H. (Ed.), *Cargo, Cult, and Culture Critique*, University of Hawaii Press, Honolulu, pp. 15–35.
- Lund, A. (2015), *Frihetens rike : Wikipedianer om sin praktik, sitt produktionsätt och kapitalismen*, Tankekraft, Hägersten.
- Lynch, K., Baker, J. and Lyons, M. (2009), *Affective equality : love, care, and injustice*, Palgrave Macmillan, Houndmills, Basingstoke; New York.
- Mackay, H. and Gillespie, G. (1992), "Extending the Social Shaping of Technology Approach: Ideology and Appropriation," *Social Studies of Science*, Vol. 22, No. 4, pp. 685–716.
- Mager, A. (2012), "Algorithmic ideology," *Information, Communication & Society*, Vol. 15, No. 5, pp. 769–787.
- McDowell, L. (2009), *Working bodies : interactive service employment and workplace identities*, Wiley-Blackwell, Chichester.
- McDowell, N. (1988), "A note on cargo cults and cultural constructions of change," *Pacific Studies*, Vol. 11, No. 2, pp. 121–134.
- Morozov, E. (2013), *To save everything, click here : the folly of technological solutionism*, PublicAffairs, New York.
- Morville, P. and Callender, J. (2010), *Search patterns*, O'Reilly Media, Sebastopol, CA and Farnham.
- Munro, E. (2014), "Doing emotion work in museums: reconceptualising the role of community engagement practitioners," *Museum & Society*, Vol. 12, No. 1, pp. 44–60.
- Nahl, D. and Bilal, D. (Eds.) (2007), *Information and emotion: The emergent Affective Paradigm in Information Behavior Research and Theory*, Information Today, Medford, NJ.
- Negishi, K. (2012), "Smiling in the Post-Fordist "Affective" Economy," *Transformations*, No. 22.
- nez, R. I. G.-I. (2013), *A study of positive and negative affective states in collaborative information seeking*, Ph.D. thesis, Rutgers, New Brunswick, NJ.
- Nissenbaum, H. (2010), *Privacy in context: Technology, policy, and the integrity of social life*, Stanford Law Books, Stanford.
- Noble, S. U. (2013), "Google Search: Hyper-visibility as a Means of Rendering Black Women and Girls Invisible," *InVisible Culture*, Vol. 19, available at: <http://ivc.lib.rochester.edu/portfolio/google-search-hyper-visibility-as-a-means-of-rendering-black-women-and-girls-invisible/> (accessed at 31 may 2016).
- Nolin, J. M. (2010), "Speedism, boxism and markism: Three ideologies of the Internet," *First Monday*, Vol. 15, No. 10.
- Nonaka, I. and Takeuchi, H. (1995), *The knowledge-creating company : how Japanese companies create the dynamics of innovation*, Oxford University Press, New York.
- Orlikowski, W. J. (1992), "The Duality of Technology: Rethinking the Concept of Technology in

- Organizations,” *Organization Science*, Vol. 3, No. 3, pp. 398–427.
- Parikka, J. (2013), “Virality: Contagion Theory in the Age of Networks by Tony D. Sampson,” *Theory, Culture & Society*, Vol. 30, No. 3, pp. 131–136.
- Pasquinelli, M. (2009), *Google’s PageRank Algorithm: A Diagram of the Cognitive Capitalism and the Rentier of the Common Intellect*, available at: [http://matteopasquinelli.com/docs/Pasquinelli/\\_PageRank.pdf](http://matteopasquinelli.com/docs/Pasquinelli/_PageRank.pdf) (accessed at 31 may 2016).
- Peters, M. A., Britez, R. and Bulut, E. (2009), “Cybernetic capitalism, informationalism and cognitive labor,” *Geopolitics, History, and International Relations*, No. 2, pp. 11–40.
- Radford, M. L. and Connaway, L. S. (2010), “‘I Stay Away from the Unknown, I Guess.’ Measuring Impact and Understanding Critical Factors for Millennial Generation and Adult Non-users of Virtual Reference Services,” in *Online Proceedings of the Fifth Annual iConference, University of Illinois at Urbana-Champaign, February 3-6, 2010*, pp. 26–33.
- Ramiller, N. C. and Chiasson, M. (2008), “The Service Behind the Service: Sensegiving in the Service Economy,” in Barrett, M., Davidson, E., Middleton, C. and DeGross, J. I. (Eds.), *IFIP The International Federation for Information Processing*, Springer, Vol. 267, pp. 117–126.
- Rogoff, B. (1995), “Observing sociocultural activities on three planes: participatory appropriation, guided appropriation and apprenticeship,” in Wertsch, J. V., Rio, P. D. and Alvarez, A. (Eds.), *Sociocultural studies of the mind*, Cambridge University Press, Cambridge, pp. 139–164.
- Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., Withey, R., Jamali, H. R., Dobrowolski, T. and Tenopir, C. (2008), “The Google generation: the information behaviour of the researcher of the future,” *Aslib Proceedings*, Vol. 60, No. 4, pp. 290–310.
- Sampson, T. D. (2012), *Virality : contagion theory in the age of networks*, University of Minnesota Press, Minneapolis.
- Savolainen, R. (2011), “Judging the quality and credibility of information in Internet discussion forums,” *JASIST*, Vol. 62, No. 7, pp. 1243–1256.
- Savolainen, R. (2012), “Elaborating the motivational attributes of information need and uncertainty,” *Information Research*, Vol. 17, No. 2.
- Schirato, T. and Webb, J. (2003), *Understanding globalization*, SAGE, London.
- Scholz, T. (2014), “The Politics of the Sharing Economy,” *Collectivate.net*, available at: <http://collectivate.net/journalisms/2014/5/19/the-politics-of-the-sharing-economy.html> (accessed at 31 may 2016).
- Schumann, S. (2014), *How the internet shapes collective actions*, Palgrave Macmillan, Basingstoke, available at: <http://lib.myilibrary.com?id=670726> (accessed at).
- Seife, C. (2014), *Virtual unreality : just because the Internet told you, how do you know it’s true?*
- Snickars, P. (2014), “Information overload,” in Czaika, O., Nordin, J. and Snickars, P. (Eds.), *Information som problem: Medieanalytiska texter från medeltid till framtid*, Kungliga Biblioteket, Stockholm, pp. 278–320.
- Soltas, E. and Stephens-Davidowitz, S. (2015), “The rise of hate search,” *The New York Times*, available at: <http://www.nytimes.com/2015/12/13/opinion/sunday/the-rise-of-hate-search.html> (accessed at 31 may 2016).
- Stein, M. (2007), “Toxicity and the unconscious experience of the body at the employee–customer interface,” *Organization Studies*, Vol. 28, No. 8, pp. 1223–1241.
- Sundin, O. (2011), “Janitors of knowledge: constructing knowledge in the everyday life of Wikipedia editors,” *Journal of Documentation*, Vol. 67, No. 5, pp. 840–862.
- Tapscott, D. (2009), *Grown Up Digital: How the net generation is changing the world*, McGraw Hill, New York.

- Taylor, P. and Bain, P. (2003), "Subterranean Worksick Blues: Humour as Subversion in Two Call Centres," *Organization Studies*, Vol. 24, No. 9, pp. 1487–1509.
- Teevan, J., Collins-Thompson, K., White, R. W., Dumais, S. T. and Kim, Y. (2013), "Slow Search: Information Retrieval Without Time Constraints," in *Proceedings of the Symposium on Human-Computer Interaction and Information Retrieval*, ACM, New York, HCIR '13, pp. 1:1–1:10.
- Tennie, C., Frith, U. and Frith, C. D. (2010), "Reputation management in the age of the world-wide web," *Trends in Cognitive Sciences*, Vol. 14, No. 11, pp. 482 – 488.
- Thellefsen, M. M., Thellefsen, T. L. and Sørensen, B. (2014), "The fallacy of the cognitive free fall in communication metaphor-a semeiotic analysis," *Library Trends*.
- Tredinnick, L. (2008), *Digital Information Culture: The Individual and Society in the Digital Age*, Chandos, Oxford.
- Turkle, S. (2005), *The second self : computers and the human spirit, twentieth anniversary edition*, MIT Press, Cambridge, MA.
- Twidale, M. B., Gruzd, A. A. and Nichols, D. M. (2008), "Writing in the library: Exploring tighter integration of digital library use with the writing process," *Information Processing & Management*, Vol. 44, No. 2, pp. 558 – 580.
- Vaart van der, R., Drossaert, C. H., Taal, E. and Laar van de, M. A. (2012), "Giving rheumatology patients online home access to their electronic medical record (EMR): advantages, drawbacks and preconditions according to care providers," *Rheumatology*, Vol. 33, No. 9, pp. 2405–2410.
- Vakkari, P. (2014), "When Context Matters: From Context to Contextual Analysis," in *Presentation at Context in Information Behavior Research, ASIS&T SIG-USE 2014 Annual Research Symposium Nov 1, 2014, Seattle, WA*.
- Venkatesh, V., Morris, M. G., Davis, G. B. and Davis, F. D. (2003), "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly*, Vol. 27, No. 3, pp. 425–478.
- Vincent, S. (2011), "The emotional labour process: An essay on the economy of feelings," *Human Relations*, Vol. 64, No. 10, pp. 1369–1392.
- Virno, P. (2004), *A Grammar of the Multitude : For an Analysis of Contemporary Forms of Life*, MIT Press, Cambridge, MA.
- Vishwanath, A. and LaVail, K. H. (2012), "The role of attributional judgments when adopted computing technology fails: a comparison of Microsoft Windows PC user perceptions of Windows and Macs," *Behaviour & Information Technology*, pp. 1–13.
- Walberg, H. J. (1988), "Synthesis of Research on Time and Learning," *Educational Leadership*, Vol. 5, No. 6, pp. 76–85.
- Warner, J. (2010), *Human information retrieval*, MIT Press, Cambridge, MA.
- Warr, W. A. (2008), "Social software: fun and games, or business tools?" *Journal of Information Science*, Vol. 34, No. 4, pp. 591–604.
- Weinberger, D. (2010), "Clay Shirky, info overload, and when filters increase the size of what's filtered," *Joho the Blog*, available at: <http://www.hyperorg.com/blogger/2010/01/31/2b2k-clay-shirky-info-overload-and-when-filters-increase-the-size-of-whats-filtered/> (accessed at 31 may 2016).
- White, D. and Le Cornu, A. (2010), "Eventedness and disjuncture in virtual worlds," *Educational Research*, Vol. 52, No. 2, pp. 183–196.
- White, H. C. (2008), *Identity and control : how social formations emerge*, Princeton University Press, Princeton.
- Wilder, S. (2005), "Information Literacy Makes All the Wrong Assumptions," *Chronicle of Higher Education*, Vol. 51, No. 18, p. B13.

Wu, K.-C. (2015), "Affective surfing in the visualized interface of a digital library for children,"  
*Information Processing & Management*, Vol. 51, No. 4, pp. 373–390.