

Acts of Trust

The Working Relationship between Librarians and Google

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Title

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Abstract

As the gateway to a great variety of digital activities, Google has standardised how information is accessed. This transformation of the modern search paradigm has brought about a change in our relationship to information and, as information specialists librarians can offer a valuable perspective on this subject. The question of how trust plays a part in the relationship between librarians and Google forms the scope of our investigation. We address the issue through an in-depth study of the ways in which librarians work with Google, based on semi-structured expert interviews with librarians from different types of libraries. The theoretical framework draws upon Actor-Network Theory and Anthony Giddens' ideas on trust. In our analysis, we identify the networks that the librarians are a part of by examining their actions. We see an array of actors, both human and nonhuman, of which Google's services have a varying degree of importance. We conclude that, depending on the perspective, there are different conditions necessary for the placement of trust. These conditions can involve the availability of alternatives, users' level of insight and several factors concerning the matter of risk. The fact that a majority use Google's services for their online activities, and refer to this company for their information needs, makes it crucial to understand what users' relationships to Google involve. Ensuring increased general awareness of information flows is an important element in promoting democracy in a changing digital environment.

Master's thesis**Keywords**

Actor-Network Theory, Anthony Giddens, abstract system, trust, librarians, Google, socio-technical approach, Library and Information Studies, information technologies

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Introduction

In March 2014, a symposium on Google was held in one of Lund's oldest lecture halls in a building that dates back to the 16th century. A team of researchers were gathered to discuss a phenomenon that is comparatively a mere blip in the history of this building, but one that has come to play a significant role in our lives. Google and its development from being one of many search engines, to having the position of influence that it today holds over our society and personal activities, is unprecedented. The ways in which Google operates, and the symbiotic relationship it has with its users and customers, is unlike any other. We were fascinated by the implications of Google that were raised during the symposium, and were challenged by Jutta Haider's observation that, due to the very nature of Google, it is an extremely important, yet very difficult, subject of study.

Google is not just the elephant in the room; it is the room. We make Google; Google makes us and together we make Google. How can we discuss Google when there is almost no perspective from the outside?¹

This idea, so eloquently formulated by Haider, that we, together with Google, create the context in which most of us operate, forms the basis of our study. Google's infrastructure reaches many corners of our lives. Aside from its increasing role in the private sphere, Google imposes an increasing presence in our professional activities. For many, Google is the gateway to a wide variety of digital activities and shapes the way that we interact online. Google having become synonymous with its original service, the search engine, has transcended into a lexical verb: when we search online, we *google*. This transformation of the modern search paradigm has brought about a change in our relationship to information.

Moreover, Google is not just a way of seeking information, it also provides ways of communicating, interacting, co-creating and conducting business. The company has quietly replaced some of the standard tools made by other companies and Google's services are now perceived by many as essential. It is difficult to find a suitable analogy for what Google is to the modern western citizen, but in some ways it is an infrastructure, a road network that helps us to go where we want to go, or perhaps it is the vehicle in which we travel. Its ubiquitous nature may be part of the reason why it is so easily taken for granted, and why, even though it is technically free to use, it still comes with a cost. In a recent news article, journalist Andreas Ekström (2014) calls this description of Google a joke. He argues that Google is not at all free, and that the expression is used to "conceal a preposterous over-pricing of another form of

¹ Jutta Haider's talk at KDW Symposium, Lund 18 March 2014.

currency that is our personal data.” It is perhaps easy to forget that Google is first and foremost a company, and so bears very little resemblance to our road network, which has been built with our joint resources, and is actually free for everyone to use. Not only do we trust Google with our private information, we also rely on it to deliver the information and services we need, making our relationship to Google a complicated one.

Whether located in the public sphere in general, or as part of an organisation such as a school or university, the library plays an important role for its visitors through the services it provides. The library has been the organiser and keeper of information, freely accessible to all, long before the advent of Google. As well as tending to the library collection, the librarian works to assist, support and guide the visitor depending on his or her needs. Due to their unique position, working with managing and mediating information on a daily basis, the librarian is especially well equipped to value the information sources they encounter. Moreover, they have broad experience of working with different information retrieval tools and tend to have good understanding of the technology that supports their work. While librarians can specialise in very different areas, and have a great variety of responsibilities, they are always valuable resources within their surrounding community. As technology advances, information needs and behaviours change, arguably making the job of the librarian even more critical to those whom they serve. How then do librarians, as experts in information management, relate to a company that claims to “...organize the world’s information and make it universally accessible and useful” (Google 2015a)? It is our ambition to examine the tension between these actors.

Libraries as institutions have a responsibility to work with the way in which people access information online, as highlighted in the International Association of Library Associations and Institutions’ (IFLA) 2013 trend report. The first trend identified by IFLA (2013, p. 4) is that *New technologies will both expand and limit who has access to information*, which concerns the digital divide and the fact that people’s digital competencies must evolve along with advancing technologies. Another observation made here reflects upon the new kinds of influences that online business models have on “who can successfully own, profit from, share or access information in the future.” IFLA (2013, p. 4) identifies how governments and companies monitor online behaviour and how this affects privacy and trust in a digital environment. The organisation continues to speculate that, as people gain greater insight about this type of online tracking, their trust in digital services is reduced. Based on these new conditions set by our shared digital environment, the need for libraries to offer guidance is crucial. The recently internationally established term *media and information literacy* (MIL) is designed to encapsulate the idea of empowering people to understand, use and critically assess digital information tools (UNESCO, n.a.). For libraries, this development means that librarianship involves acting as a guide, facilitating library users to become informed citizens. As we can see, IFLA emphasises how complex issues arise with new technology, and people’s understanding of these issues, are related to trust. If libraries are intended to act as guides on these matters, we find it important to study how librarians themselves place trust in digital services.

In this study, we see trust as an integral part of all social activities. We draw upon ideas that trust is not necessarily confined to relationships between humans, but that it

can also be present in the relationship between humans and technology. We build our research on the notion that trust is a crucial component for our modern society to work. As individuals, we must place trust not only in people but also in the systems that we interact with, and so trust is an element that permeates our society. When using a technology, we tend to consider its functions and, as we choose to use it, we also trust it to perform the way we expect it to. This trust makes us vulnerable in two ways; firstly, we cannot be certain that the technology carries out its set tasks; and secondly, it may be difficult to predict what the other consequences of our use and trust in a technology might be. We argue that this way of viewing trust in technology is especially appropriate in a study of the unparalleled phenomenon of Google and all its technologies.

Our point of departure is the idea that our relationship with Google, a technical system entangled in our society, involves trust. The question of how librarians trust Google forms the scope of our investigation, which we perform through an in-depth study of the ways in which librarians work with Google, and how their trust can be interpreted through their actions. Due to the nature of their profession, librarians tend to have detailed knowledge of ways to manage and organise information, and digital information systems play a considerable role in the librarian's everyday professional activities. This professional expertise may shape the way librarians relate to other digital systems. Since, for many of us, Google is an integral part of our everyday lives, we find it interesting to view Google through the eyes of librarians. Generally, the architecture of Google and the consequences of the ways in which the algorithms work are not widely known. The librarian's skill set provides potential to understand the complexities of Google's functions and its influence on society. Therefore, librarians may be seen as having a professional responsibility to have knowledge about information flows, how they can be managed, and be able to convey this knowledge to others.

In conclusion, for Google to hold a role as a key player in our social activities, trust is a prerequisite. In addition to being a social tool, Google has standardised our ways of accessing information and this is now a factor in the librarian's role as a guide in information flows. This development creates a complex relationship between Google and librarians. Therefore, we want to gain an understanding of the ways in which librarians, as information experts, may trust an information system such as Google. We call for more research on trust in Google within the Library and Information Studies field, and it is our ambition to be a part of the dialogue and make a contribution to this subject.

Aim and Research Questions

The dominance of Google, particularly in the Western world, has had far reaching consequences on both the individual and society at large. Whether seen from a distance or up close, it is important to maintain a critical perspective on Google's impact. The fact that a majority use Google's services for all online activities, and refer to this company for their information needs, means that it is crucial to understand what this relationship involves. Through our collective use of Google, we allow it to filter our information flows, making it our window to the world. Lacking insight into Google's agenda, we cannot be certain how our own interests match

Google's, yet we tend to trust it with our personal information and our information needs. Thus, our reliance on this company raises democratic concerns and it is, therefore, meaningful to study how librarians, working in a transparent democratic institution, both use and understand Google's services. We argue that it is important to further the research on Google within the field of Library and Information Studies, providing a new perspective that will help to nuance the research. Moreover, a greater understanding of our daily interactions with Google can be beneficial for increased general awareness of information flows. Promoting digital literacy is an essential element in working to uphold democracy, an effort to which we hope our study can contribute.

The aim of our study is to gain knowledge about how librarians interact with Google, and to generate an understanding of trust in this relationship. In order to ensure a good return on our efforts in conducting this study, we strive to interview librarians whom we deem informed on matters concerning Google. We place our study within the field of Library and Information Studies, and draw upon Science and Technology Studies by applying Actor-Network Theory (ANT). We use ANT in order to gain an understanding of the social context in which the professional activities of librarians take place, and to enable an analysis of their actions in relation to Google. To further enable a critical analysis of the ways in which trust can be manifested, we turn to Anthony Giddens' work on the subject. Giddens provides an understanding for our study of trust, and allows insight into trust as an essential component of our activities in society.

Our objective is to examine what elements of trust can be identified in librarians' use of Google services.

In order to fulfil our objective, we pose the following three questions:

1. What actions are prominent in the librarians' networks?
2. What roles can be determined within these networks?
3. How is trust a part of the working relationship between librarians and Google?

Limitations

Through our use of ANT, we gain an understanding of the informants' activities and the social context in which they are a part. However, this approach is not conducive to examining reasons behind the activities we identify, and we cannot speculate as to the consequences of their actions. As shown in the second chapter of this study (Theoretical Framework), ANT can be viewed as providing a way to describe a condition, as opposed to explaining it. Our choice to draw upon Giddens' theoretical understanding of trust involves the exclusion of other prominent writers on the subject. Our theoretical perspective on trust in a social context is therefore not as nuanced as it could be. Finally, our focus on librarians' trust in Google means that we do not cover the habits of other professional or nonprofessional groups within the general public. Throughout our orientation in the areas of research connected to our object of study, we have observed a lack of research directly related to ours. Overall, we see an absence of research within the field of LIS, dealing critically with the relationship between the librarian and Google. While there is research within LIS on

certain functions of Google, such as Scholar and Search, we have not found a single example of research dealing with librarians' trust in Google.

Structure

This thesis is divided into six chapters. In our *Introduction*, we open with a presentation of the background to our study, as well as an account of our *Aim and Research Questions*. We then present the *Theoretical Framework* in which we place our study. In the next chapter, *Previous Research*, we describe the setting in which our study is placed, at the intersection of *A Critical Look at Google*, *The Librarian's Role in a Digital Landscape* and *Trust in a Digital Environment*. Our methodological approach is presented in the chapter *Method*. The most extensive chapter, *Analysis*, presents our empirical analysis of librarians' trust in Google. Finally, in the chapter *Conclusion*, we draw conclusions regarding the three questions that have served to guide and focus our research, reflecting on the outcome of the research, as well as considering potential pathways for further research.

Theoretical Framework

In this chapter, we present the theoretical framework that we have constructed based on two theoretical concepts, one being ANT, and the other Giddens' ideas on trust. After a closer explanation as to why we have made this choice and in what ways it is beneficial to our study, we go on to introduce ANT and the terminology that we use in this study. Following this section, we present the key aspects of Giddens' interpretation of trust in modern society.

In order to gain an understanding of librarians' trust in Google, we need to illustrate their relationships to each other and establish what trust is. To help us achieve this goal, we see ANT and Giddens' theories on trust as two complementary perspectives. As we learn about the librarians' work activities, we draw upon ANT to comprehend the scope of the interplay between Google and the librarians. We see ANT as being beneficial to our study, because it allows us to examine the dynamic relationship between the actors and the network in which they operate. Through the use of ANT, we may gain an understanding of these social connections between librarians and other actors within the networks. As previously established, we base our view of the concept of trust on Giddens' writings. Giddens' idea that trust is a key component in all social relations is important to our understanding of trust. It is our opinion that this strategy allows us to make a statement about librarians' trust in Google's services.

We see benefits to this combination of ANT and Giddens' ideas on trust. Both viewpoints speak to the ways in which humans cannot be understood in isolation, but must instead be seen within a social context that involves other entities such as systems and technologies. By combining these ideas, we can take a more flexible approach to our material and alternate our perspective. Thus, we can use ANT to look closely at interactions, whilst drawing upon Giddens' work to zoom out and look at how such activities fit into a larger social context. As we will go on to see, it is argued that ANT is in fact not a theory, but a way of working. ANT is seen to provide the researcher with a means of describing the social context, and it is for this purpose that we have selected it. Giddens' ideas, on the other hand, allow for a different kind of understanding, and assist us in looking critically at trust in the same context.

Actor-Network Theory

In the following section, we present ANT and locate it within the field of STS, and identify the central ideas connected to this theory. Following this section, we introduce terms within ANT that we have chosen to apply in our study. Since our research aim is to gain knowledge about how librarians interact with Google, and to

generate an understanding of trust in this relationship, we go on to explore how the concept of trust can be applied in research using ANT.

ANT is used to describe the ways in which a social context is constructed, and emphasises the importance of the heterogeneity of all entities that exist within in any particular social context; or in ANT terms, a network. Heterogeneity in this context means that the objects of study can be both human and nonhuman, and that they are defined by their actions as opposed to their individual attributes. This viewpoint can be explained by the practical example of cooking food, which involves several actions that are performed by several actors, such as the cook, the stove and the spatula. In ANT, this example of a network can be understood by the dynamic relations between the actors and the activities that they are observed performing. In our study, we examine the interactions between librarians and Google, and the networks that they are a part of.

In this thesis, we draw upon the work of three of the main contributors to the development of ANT; Michel Callon, John Law and Bruno Latour. The theory has been used to study laboratories and scientific research (Law 2009, pp. 144-145). The definitions of the theory itself are contested by the founders of ANT, such as Law (2009, p. 141) who emphasises that the theory “is not a theory”. He argues that one must look at ANT as an approach grounded in empirics and is used to describe rather than to explain. Law (2009, p. 142) adds that ANT should be seen as a toolkit, an instrument to study and depict relations. A similar sentiment is presented by Latour (2005, p. 68) who stresses that, as ANT is used as a method for analysis, the researcher is instructed to “follow the actors.” We apply this concept in our study, as we strive to describe the actions and networks within the context of our study. In this way, ANT enables us to identify the social as seen from a sociotechnical perspective.

ANT originates from the interdisciplinary field of science and technology studies (STS). Sanna Talja (2010, p. 4604) notes that here are several theories developed within STS that all address the complex relationship between humans and technology from a social perspective of which ANT is one. Talja explains that these theories are concerned with the role of technology in society and the interactions between humans and technologies, and have been widely used within information science. The author states that there are different views on how STS and information science are connected, and they may be seen as either overlapping or entirely separate. She remarks that research that deals with digital environments now faces the integration of technology and information, due to the constantly evolving digital formats of, for instance, social media, cloud computing and communication tools. This idea is underscored by prominent researchers within the STS field, Wiebe Bijker, Thomas Hughes and Trevor Pinch (2012, p. 185-186), who profess that it is not meaningful to see society and technology as separate entities in our modern society. While we place our study within the LIS field of research, we draw upon ideas within ANT, since it allows us to see Google within its social context.

The notion of the co-shaping of technology and the social permeates STS, which deviates from previous deterministic approaches where technology and the social are viewed as autonomous and developed independently (Talja 2010, p. 4605; Van House 2004, p. 45). Deborah Johnson and Jameson Wetmore (2009, p. 93) describe these

polar ideas stating that technological determinism is where the impact of technology on society is seen as absolute. Social constructionism, on the other hand, sees technological development as actively shaped by humans. The authors view ANT as the solution to this separation, since it treats both humans and technologies as part of the development of sociotechnical systems. In fact, Johnson and Wetmore (2009, p. xiii) take this a step further, declaring that “[t]echnology neither exists nor has meaning without the human activities of which it is a part and similarly, many social practices would be impossible or incomprehensible without material objects.” Johnson and Wetmore (2009, p. xiii) highlight the effects that technologies may have on society, but equally deal with the way in which social factors may shape technology. We have the same mindset in our study, which allows us to gain a holistic view of the relationship between librarians and Google.

Our decision to examine trust in the light of ANT is not unique in LIS research, and there are examples of previous research with the same perspective. In their paper, Luca Giustiniano and Francesco Bolici (2012) create a conceptual framework for examining the complex relationship between trust and technology using ANT. Giustiniano and Bolici (2012, p. 189) state that within the extensive research field of trust, focus often lies on human interaction in a physical space (individual and organisations) and that digital aspects in a social context are not taken into account. Giustiniano and Bolici (2012, p. 192) explain how emerging research now focuses on trust in a digital environment, thereby advancing previous research that has applied ideas connected to physical trust. Their framework is an attempt to create a new way to organise this research. Giustiniano and Bolici (2012, p. 188) argue that today, social and technological factors are closely connected, and with changing social conditions and technological advances, the ways in which we trust are also reshaped. The authors propose that these developments make the established narrative of trust insufficient in current research on digital trust. Giustiniano and Bolici (2012, p. 195) argue that using ANT allows the researcher to gain “a broader understanding of the role of trust in online settings.” Giustiniano and Bolici (2012, p. 196) conclude that their framework makes it possible for the researcher to gain more knowledge of the coproduced actions within a network. While we are inspired by the authors’ argument that ANT can be used in a study on trust, we feel that ANT alone would be insufficient to fulfil our aim. We agree with Giustiniano and Bolici that using ANT allows us to understand the actions of trust. However, ANT deals with specific actions, and we do not find it conducive to an analysis of a broader perspective on social phenomena in general. Therefore, we also turn to Giddens’ critical understanding of trust in modern society (as presented below) to explore the different ways in which trust is placed.

Another example of the use of ANT in LIS research is Marisa Ponti’s (2010) dissertation, in which she carries out a study on collaborative work between information professionals and LIS academics, with ANT as her analytical framework. Ponti (2010, p. 56) uses ANT in order to connect social and technological elements, and thereby attempts to gain an understanding of the social processes that make up a collaborative work. In Ponti’s analysis, she also identifies certain sociotechnical influences that could affect the interaction between the actors. Ponti (2010, p. 60) emphasises that ANT in her study is used to follow the actors in order to establish “what they did but also how and why they did it, trying not to impose on them a pre-

established view of their world and their activities." While our study contains some similar elements to Ponti's, focus on collaboration, which forms the scope of her study, it is not directly related to ours. However, her use of ANT provides a noteworthy example of how this theoretical perspective may be applied in a LIS study and where interviews with information professionals are part of the data collection.

Applicable Terminology in Actor-Network Theory

We draw upon ANT terminology as a tool to understand and describe our object of study. Thus, we identify certain central, applicable terms within the theory, of which we present a summary in this section. In some cases we refer to previous research to further our understanding of how the terms can be used.

Actors and Networks

Law (1999, p. 3) states that it is the relationship between entities, or actors, that forms them. He explains that an actor is an entity that performs an action and that it can be either human or nonhuman, however, the nature of each actor is not relevant to the same degree as how the actors affect each other. According to Law, the distinction between the social and the technical cannot be viewed as separate phenomena; rather, social and technological elements are defined by their relations and not by their character. Furthermore, Callon and Law (1997, p. 167), uphold that since our society is made up of both humans and nonhumans, the "social is materially heterogeneous". At the time of writing, Callon and Law (1997, p. 168) based their ideas on the fact that there was a general sentiment of nonhuman objects being seen as passive, and thus could only be activated by humans. This view is questioned by the authors, who argue that both humans and nonhumans play a part in establishing the social. Callon and Law (1997, p. 169) draw upon Latour's work on Pasteur when forming this argument, concluding with the idea that Pasteur's work was made up of a variety of components, such as laboratories, notebooks and previous research, which therefore meant that Pasteur himself was a network. This conclusion in turn could mean that the entities that make up a network must be viewed within their context.

The use of the word 'network' in ANT is contested by Latour. Latour (2005, p. 129) is hesitant to use the term, since it brings forth connotations of other types of networks, such as the Internet or the sewage system. In ANT, Latour (2005, p. 131) explains that the term network is never such a clearly defined structure; it is merely intended to "help describe something, not what is being described." In his discussion of the term, Latour (2005, p. 143) makes his thoughts on the matter clear when stating, "we should say 'work-net' instead of 'network'. It's the work, and the movement, and the flow, and the changes that should be stressed." Thus, Latour determines that a network is not a collection of objects, but is instead a combination of actions, and it is these actions that define the network.

As we strive to describe the social context in which the librarian and Google's services interact, the idea that both humans and nonhumans are active participants in the creation of that context is at the core of our study. We follow Latour's explanation of networks, in that we identify the networks that the librarians are a part of by tracing their actions, and by distinguishing these networks, we can then outline certain social contexts. Furthermore, the idea that actors are shaped by their relationship to other actors is important, as we aim to study the relationship between

librarians and Google. ANT enables us to make a determination on what roles the actors have within their networks. Thus, by referring to ideas of ANT and what makes up actors and networks, we have a way to reach our objective.

Translation

In ANT, 'translation' is a widely discussed concept and it is always at the core of the theory. In fact, Latour (2005, p. 106) observes that ANT should really be called 'sociology of translation'. Based on our understanding of Latour's (1987, 1991, 2005) writings on this subject, translation is about two entities existing side-by-side whose interests are aligned. In the following quote, Latour explains the term:

In addition to its linguistic meaning (relating versions in one language to versions in another one) it has also a geometric meaning (moving from one place to another). Translating interests means at once offering new interpretations of these interests and channeling people in different directions. (Latour 1987, p. 117)

In this quote, Latour reasons that there is a form of alignment in the translation between two languages; the words translated are related but not exactly the same. In this way, the words are aligned and co-exist but remain separate. When discussing the geometric meaning, Latour (1991, p. 104-109) uses an example of a hotel, where the owner aligns his own interests with those of his guests by placing a bulky object on the key chain. This makes it in the guests' interest to return the key, due to the fact that it is uncomfortable to carry. The owner's interest is translated (getting the key back) via a block on a keychain. Through this translation, the guest has been channeled in a certain direction.

Talja (2010 p. 4607) discusses the concept of translation and how it is applicable to technological innovations. She affirms that one technology may be used in different ways depending on the context, which, in ANT can be identified as the translations that take place within a network. As the author explains, the users of a technology adapt it to suit their own needs, but they may also themselves be affected by the technology. This idea is an example of the STS perspective, where the context in which a technology resides is core and not the inner functions of the technology itself. Talja (2010, p. 4607) concludes by emphasising that technologies and its users "coproduce each other" and that ANT provides an ideal method for examining these processes. Following this argument, we see that translation reflects an aspect of the relationship between human and nonhuman actors.

The term translation, as explained by Latour, provides us with a way to interpret some of the relationships that we see between actors in the networks. By identifying translation at work in the networks, we can address our second research question and gain awareness of some of the actors' roles within them. Talja observes that the idea of translation can be useful when examining technological entities, and that translation can hold different functions depending on the context. It is ideas like this that motivate a closer look at translation in our study of the multi-faceted Google. Furthermore, we see Talja's remark that technologies and their users feed each other as a useful perspective in our study, for Google and its users display elements of coproduction when exchanging data, which is discussed further in the chapter *Previous Research*. Translation, as part of the ANT perspective, thus provides us with a way to analyse this dynamic.

Obligatory Passage Points

The process of translation can work to make a certain entity indispensable (Callon, Law & Rip 1986, p. xvii). This is a concept that, among others, Callon (1986, p. 26-27) discusses, and according to him, an obligatory passage point occurs when the actors in a network are dependent on it, where the network has been made indispensable. We can illustrate this idea with a technical innovation such as Apple's iTunes software, which is rendered indispensable by being a system that all must pass through in order to perform a certain action. The user of an iPhone or iPad, for example, must use iTunes when transferring music to the hardware device. Furthermore, the music providers, who are also stakeholders in this system, must themselves adapt to the iTunes' format.

Astrid Mager's (2009) research provides an example of how Google can be seen as an obligatory passage point. In her study, Mager examines users' search for online health information from a sociotechnical perspective, specifically applying ANT as her method. Through her application of ANT, she concludes (2009, p. 1137) that Google can be seen as an obligatory passage point because it channels the actions of both website providers and users searching for health information. However, she underscores that this does not assign Google a passive role, but rather makes it an active translator between the different actors in her study. In a similar way, we use the concept of the obligatory passage point to understand the roles that the actors can have in the different networks. As with the benefits of describing translation, outlining obligatory passage points helps us to address our research questions.

Black Box

In ANT, a black box is described by Callon and Law (1997, p. 174) as a network that has been stabilised and acts as a single unit. Our understanding of a black box is when a complex process, in which different entities acting within a network, become synchronised and are thereby rendered invisible. The content of a black box does not need to be understood, only its inputs and outputs. Latour (1987, p. 131) uses the example of the Kodak automatic camera, where the user does not need to comprehend the internal workings of the machine, only that when pressing the button (input) a picture will be taken (output). Callon and Law (1997, p. 174) use a different example to explain how a black box represents a network, they point to how a president acts as the front for a country, or rather, a greater network. Callon and Law (1997, p. 174) state that the black box translates the complex processes and does this "by coordinating them, by fronting for them, and by standing for them in a simple and coherent form". As we understand it, a black box is when a network is interpreted as a single unit rather than by the elements that make it up.

In his study of the relationship between trust and confidence, and the role played by explanations within it, Wolter Pieters (2010) offers further nuance to our understanding of the ANT term 'black box'. We interpret Pieters' use of the term 'explanation' as an understanding of how a person's or a system's behaviour is conveyed. If a system lacks explanations, it can, according to Pieters (2010, p. 56-57), be seen as a black box. Pieters makes a distinction between two forms of explanation. The first,

called *explanation-for-trust*, is an explanation of the inner workings of a system and as this is explained, the user trusts it. The second, called *explanation-for-confidence*, involves only the external functions of a system being explained, which allows the user to feel confident to use a system without having to consider alternatives. In his definition of these terms, Pieters (2010, p. 56) illustrates how black boxes “denotes a lack of visibility or observability”. According to Pieters, systems that can be understood as black boxes are explained-for-confidence, therefore he concludes that black boxes cannot acquire trust, only confidence. In our study, the ANT term ‘black box’ helps us understand how the attributes of a system affect its role in a network. Pieters’ reasoning provides us with further understanding of how actors’ trust can be understood in different ways, depending on the visibility of a system.

Giddens’ Understanding of Trust

As we strive to shift between perspectives in our analysis, we must examine trust in our area of study in a larger context, and we therefore consider Giddens’ ideas conducive to the achievement of our aim. In this section we present a brief overview of Giddens’ theoretical viewpoint, paying special attention to his ideas on trust in modern society. We conclude with a remark on what separates our two chosen perspectives in our theoretical framework, including a note on how we interpret these differences as generally complementary to each other in our study.

Giddens’ theories in the field of sociology are far reaching, and extend to many other fields of study, including that of LIS. Howard Rosenbaum (2010, p. 127) notes that there are several examples of Giddens’ theories being used in LIS research, and that his ideas are drawn upon “to study the social contexts of information seeking and use in social and organizational settings.” He goes on to remark that they often address the ways in which various kinds of information systems are implemented, and issues concerning information behaviour. From Giddens’ great body of work, the perhaps most recognised element, is his structuration theory. Rob Stones (2009, p. 91) accentuates the impact of the theory, noting that it has been highly influential in the development of social theories over the last few decades. Stones reasons that Giddens tried to view actors and actions from two different perspectives, involving both the solid social framework in which the actions take place and the creative liberty that the actors have to act freely within these structures. We see how Giddens’ concept suggests a circular movement, where the individual and the system feed into each other.

Rosenbaum (2010, p. 121) describes how Giddens’ theory provides an in-depth understanding of how “society and social individuals are created and recreated through ongoing and routine social interactions.” Rosenbaum (2010, p. 122-123) goes on to explain how, through our daily interactions in any social system, we are simultaneously empowered by the opportunities that the system offers and bound by its limitations. The author explains how Giddens sees a duality, meaning that as actors interact within a social system, they maintain its structure and make the system a product of the activities performed within it. We offer this understanding of Giddens’ theory in broad strokes and feel that these notions are beneficial to our further examination of Google in a social context. However, structuration theory does not provide a specific comprehension of the role of trust within these social systems.

As we consider trust and its role within social systems we draw upon Giddens' ideas of how trust manifests in the modern society. Looking at two of Giddens' works, *The Consequences of Modernity* (1990), and *Modernity and Self-identity: self and society in the late modern age* (1991) we attempt to present his thoughts on trust. Giddens (1990) sees trust as a necessary component in our everyday activities. In order to interact with our surroundings, we need to trust that the people and things around us will behave in a certain way. Furthermore, Giddens (1990 p. 33) argues that trust is necessary when a complete understanding of a system or person is lacking, stating that “[t]here would be no need to trust anyone whose activities were continually visible and whose thought processes were transparent, or to trust any systems whose workings were wholly known and understood.” Thus, Giddens (1990 p. 33; 1991, p. 19) concludes that trust is necessary due to the absence of full information.

Giddens (1991, p. 16-17) puts forward the idea that a separation of time and space has occurred in our modern society. The general idea of his argument is that today, time and space are no longer unified; from a historical point of view, the modern human is no longer constrained to these boundaries. To illustrate his point, Giddens uses the example of standardised time zones that bridge space constraints through a common global time frame. Giddens goes on to determine that the movement away from the constraints of time and space is a prerequisite for modern social systems, a process that Giddens (1991, p. 18) calls the *disembedding mechanism*. According to Giddens (1990, p. 21) ‘disembedding’, means that by “lifting out” social relations from their specific contexts and examining them from a general perspective, the interactions can be understood as social systems rather than local actions. A form of disembedding is what Giddens calls *abstract systems*. Abstract systems, according to Giddens (1991, p. 18), can relate to either ‘symbolic tokens’ of which their interchangeable nature may most easily be exemplified by money, or ‘expert systems’ that are sociotechnical systems, created and maintained by experts and used by everyone on a daily basis. Giddens illustrates how abstract systems, such as modes of transport, eating food or taking medication, permeate our modern lives and form an integral part of most of our activities. Giddens (1991, p. 82) contends that trust in abstract systems forms the basis of our society.

In previous research, we see an example of how the idea of an abstract system can be used to interpret the activities surrounding an information system. Jeremy Rose and Bjarne Rerup Schlichter's (2013) study on trust as part of the implementation of a large scale information system, provides one example of Giddens' ideas being used in the field. Rose and Schlichter (2013, p. 10, 12) argue that Giddens' theories assist them to understand the ways in which trust relationships evolve within the system. The authors visualise their object of study, an implementation project that stretches across time and space and includes many actors, as an abstract system. Rose and Schlichter (2013, p. 24) conclude that by using such a construct, they can identify “an evolving trust landscape over the life of the project.” Here, we see an example of previous research where the idea of abstract systems is used to study activities connected to information systems.

According to Giddens (1990, p. 90), trust in abstract systems is usually routine in everyday activities. Giddens (1990, p. 90) states that an individual does not make a “leap to commitment” by interacting with and trusting abstract systems, instead it is

the acceptance of such systems is due to a lack of alternatives. Giddens observes that, in order to be a part of modernity, we must place trust in these abstract systems and this negotiation of trust reveals that we cannot avoid the systems that make up modern society. Lars Bo Kaspersen (2000, p. 101) comments on these constraints of modernity that Giddens describes, stating that: “We strike a deal with modernity, as it were, because we can neither live without it nor avoid it.” Kaspersen explains Giddens’ argument on this matter, noting that we make pragmatic choices within the social systems. For example when we are ill, we do not have a choice but to seek help from the medical services however, we may choose to seek medical attention from a doctor whom we prefer. Extending this argument, we can see that, while we can choose to trust a certain doctor, the option to not trust the medical system is not an alternative.

Giddens’ understanding of risk forms an important basis for our study. Giddens (1990, p. 35) sees risk and trust as closely connected, meaning that, in any situation involving trust, there is also an element of risk. Therefore, the idea that risk is always a factor is key to an understanding of trust in relation to interactions with abstract systems such as Google. Giddens (1991, p. 136) speaks of the dynamic between the individual and these systems, stating that the individual is not equipped to cope with the consequences that may occur when an abstract system fails. Giddens describes how, as these systems expand to even a global level, the interdependence grows, resulting in an increased vulnerability for the individual. Furthermore, Giddens (1990, p. 35-36) notes that risk is not just related to our individual actions but that it also pertains to so called “risk environments” that concerns us as a group on a general level. One of his examples of such a risk environment is global warming, which affects humanity on a global level, as well as us as individuals.

To conclude, we see Giddens understanding of the modern society and the systems that exist within it, as a useful addition to our study on trust in Google. We argue that the disembedding properties of Google warrant an understanding of it as an abstract system. This makes our application of Giddens’ ideas beneficial to our critical examination of librarians’ trust in interactions with the Google system. Finally, we wish to note that there are obvious differences between our two theories of choice, which we feel are important to highlight. One such contrast has to do with the differences of approach in the theories, while Giddens addresses the nature of social phenomena and views social aspects from a broad perspective, ANT tends to focus on specific actions. Moreover, for Giddens, humans have some degree of awareness of their actions. In ANT, on the other hand, there is no concern for the human actors’ knowledge of their own actions. ANT makes no difference between human and nonhuman actors. It is the actions that are in focus, rather than the actor behind them. These differing approaches are beneficial to our study, since we are equally interested in specific contexts as well as that of a social phenomenon. We can also see some similarities in the theories, which pertain to their non-deterministic views, and the emphasis on the idea of coproduction.

Previous Research

In this chapter, we present the research context in which we place our study. In the first section, we review research that deals with the role of the librarian in a digital environment and the librarian's role as an authority in this environment. In the second part of the chapter, we take a closer look at some of the current issues raised in research on Google's activities and functions. The final section of this chapter is an examination of research on trust in relation to technology. There are certain topics that we have opted to not include and while these topics have great relevance for the issues that we examine, they are not directly linked to our research questions and are therefore not pertinent to the discussion contained within this study.

In relation to trust in technology, there are certain areas of research that we have not included in our context presentation. For example, some research may deal with trust in a digital environment but not with trust in technology per se. Since we view the context of our study as heterogeneous and we are interested in the trust that human actors place in nonhuman actors, such studies are not directly relatable to our study. As we sketched the chapter on current issues related to Google, exclusions were necessary so as to maintain the focus of the study. One phenomenon that is raised in several examples of research within the field of LIS, concerns 'googlisation' in the library. For instance, such research may deal with how libraries choose to use discovery databases that have a Google-like design with one search box. While it is interesting to examine how the Google design is mirrored in library tools, this does not help us fulfil our research aim or answer our questions. Other issues often discussed in relation to Google are privacy, big data and Google Books. However, a discussion of these topics would not be conducive to the aim of our study and it is on these grounds that we have opted to not include it. Since we are interested in the social relationship between Google and librarians, we do not focus on the technical details of how Google services work, nor do we address Google's organisational structure.

A Critical Look at Google

In this section, we explore research on what Google is and does, and its impact on an individual and global level. We present how Google can be seen as a point of convergence in our daily activities and how the Google user's experience is shaped through interaction. Furthermore, we discuss issues that not only concern us individually, but also have a general influence on social behaviour. We introduce many different Google services in this section, which we refer to throughout the essay, such as the search engine, e-mail solution, cloud services and its analytical

tool. For the sake of readability, we have opted to consistently remove the word 'Google' from each of the service's names, hence, we write Search (Google Search), Drive (Google Drive) and Analytics (Google Analytics). While we see Google as a system with many functions, much research deals particularly with issues regarding Search. Therefore, while we strive to discuss Google in its entirety, there is in this section an emphasis on Google's search engine.

When studying any part of Google, the complexities of the phenomenon must be taken into consideration. We see no benefit in valuing Google in the arbitrary terms of good or evil, instead we want to raise the issues of how we use Google and incorporate it into our everyday lives. Google's expansion has long been part of an ongoing discussion. Lee Shaker (2006, n.p.) comments on this expansion and the way that Google influences Internet use and the organisation of online information. Shaker notes that Google has become "a central hub of Internet use" and is an important mediator of information. In Brian Hall's critical article on Google, written six years later, we see a similar observation; Hall (2012, p. 253) notes that Google dominates flows of information. Moreover, he remarks that we are lacking a critical discussion on Google's democratic role; the criticisms that *do* occur, on Google and privacy for example, are in fact simply a way of interacting with Google. Hall observes that, instead of questioning the system itself, one questions a particular service or function of Google. Siva Vaidhyanathan (2011) emphasises in his book *The Googlization of Everything (and why we should worry)*, the importance of the need to assess the ways in which Google influences our actions and mindsets. In our study, we attempt to make one such assessment, by examining how librarians interact with Google and we go on to review these actions.

Google's expanding nature, which involves new applications and changing formats, is a significant characteristic in this world-leading company. In recent years, Google has provided new ways of working collaboratively within its Google Apps structure, such as Drive - a cloud-service where several people can work simultaneously in the same document. Another feature of Google's development lies in its acquirement of many popular services such as YouTube and Blogger. José Van Dijck (2013 p. 163-164) comments on Google's development, remarking that "[t]he imperium has branched out into practically every type of platform." The author acknowledges that the evolving character of Google now includes not only social networking services and other software products, but hardware as well. Recent examples of this diversity include Android smartphones, Google Watch, Google Glass and the Google Self-Driving Car. The rapid evolution of Google makes it hard to grasp how, and to what extent, Google influences our behaviour.

Whichever Google product one uses, only one account is needed, and with this personal Google account, the user is granted a seamless experience. Vaidhyanathan (2011, p. 90) considers the implications of this strategy, observing that being logged in, improves the usability of the system. Indeed, Vaidhyanathan (2011, p. 90) claims that "the broader Google's reach becomes [...] the more likely it is that even informed and critical Internet users will stay in the Google universe and allow Google to use their personal information." Pelle Snickars (2014, p. 281) makes an observation regarding the company's use of personal information, stating that Google profits on the enormous amounts of data that people generate by using its services.

Vaidhyanathan (2011, p. 90) makes a similar conclusion, that for Google, such personal accounts are advantageous since they provide the company with data that is based on our individual online behaviour. Thus, Vaidhyanathan (2011, p. 3) establishes the Google user as a product as opposed to a consumer. This form of exchange is relatable to many parts of Google's design. For example, Alexander Halavais (2009, p. 47) uses the example of Analytics, which can provide useful services to many of its users, and at the same time provide Google with additional data and insight into user behaviour on non-Google websites.

Google's search engine relies on certain algorithms that affect the produced search results. Dirk Lewandowski (2012, p. 3-4) observes that there are a great number of ranking algorithms that make up the search results in a search engine, which includes, amongst other things, text-based matching, popularity, freshness, locality and personalisation. Lewandowski further explains what personalisation involves:

Personalization: The aim to provide users with tailored results is referred to as personalization and combines measures from the user's own behavior (through queries entered, results selected, reading time) with measures from other users' behavior (focusing on the one hand on all users, and on the other hand on the users socially connected to the user in question), and with general measures (freshness and locality). (Lewandowski 2012, p. 4)

Today, personalisation is a factor in a search engine's algorithms that helps to decide the search results. According to Google (2015b) itself, its algorithms use over 200 unique signals to generate results. As we can see, it is the user data along with the search algorithms that make up Search's results page. Thus, Google provides a standard for searching online but there is no standard Google for us all, a fact that some argue has certain consequences. At the core of many discussions and analyses of Google is the so-called *filter bubble*, a term coined by Eli Pariser. In his book *The Filter Bubble* (2011), the author outlines how online services such as Google or Facebook shape the flow of information for each individual user according to each user's personal data. However, depending on the service, personalisation works in different ways. On Facebook, for example, the personal data is made up partly of what the users themselves opt to share with others, whilst on Google, the personal data is produced through all of the user's actions, what they search for, and what they click on.

Vaidhyanathan (2011, p. 183) describes how, since 2007, Google has worked to customise its services whereby the user's search results are adapted to criteria such as his or her particular interests, geographical location, and opinions. According to Google (2015c), this process is partly carried out by using cookies that store information about the user's activities and settings. Pariser (2011, p. 88) contends that personalisation of search results may narrow our view of the world, as it presents us only with search results that we want or expect. This sentiment is shared by Olof Sundin (2012, p. 145), who observes that next to the conventional filters, such as libraries or publishing houses, these less visible, digital filter processes limit the way we perceive the world. Sundin (2012, p. 145) highlights the potential consequences of the filter bubble and stresses the importance of understanding the underlying processes that generate such phenomena. Pariser (2011, p. 94-101) argues that Google constantly reaffirms the user's ideas and does not provide contesting information,

removing the element of discovery. The author goes on to say that the filter bubble may have several consequences, such as the restriction of creativity, learning and serendipity. Pariser (2011, p. 91) suggests that our curiosity is reduced, or even removed, through the manner in which the filter bubble hides access to information. Pariser (2011, p. 104) underscores his argument by stating that “Google is great at helping us find what we know we want, but not at finding what we *don’t* want.” Similar conclusions are formed by other authors such as Ken Hillis, Michael Petit and Kylie Jarrett (2013, p. 62) and Vaidhyanathan (2011).

The idea of ‘search neutrality’ is debated in research on issues concerning web search engines. Manne and Wright (2012) raise the question of search neutrality in Google’s search engine, discussing its potential relevance. According to the authors, Google is naturally biased, meaning that some results are always prioritised over others. Grimmelmann (2011, p. 446) points out that the question of search engines’ neutrality is meaningless, since the Internet user, as well as online information, is biased to a degree:

The point that socio-technical systems have embedded biases also cuts against search neutrality. We should not assume that if only the search engine could be made properly neutral, the search results would be free of bias. Every search result requires both a user to contribute a search query, and websites to contribute the content to be ranked. Neither users nor websites are passive participants; both can be wildly, profoundly biased. (Grimmelmann 2011, p. 446)

Manne and Wright (2012, p. 156-157) have a similar standpoint, arguing that the way in which Google filters information is what makes it useful, since it can provide the user with relevant results, and this filtering process automatically involves a prioritisation (or bias) of certain results.

There are implications to Google’s filtering, and some see this process as a form of censorship. Elad Segev (2010, p. 68) discusses the ways in which Google continuously censors information by excluding websites from its results page. Segev addresses the fact that there are different sides to Google’s censorship. One has to do with how Google acts on a local level, removing anti-government content, where the examples of China and Iran are commonly discussed. Segev goes on to remark that Google may also adapt to an individual country’s laws, removing personal websites that break the law, where one example can be anti-Semitic websites in Germany (such sites may still be available on Google’s main domain, e.g. www.google.com). However, Vaidhyanathan (2011, p. 14) points out that Google does not usually have to censor information outright; instead, in their effort to give the user an enjoyable search experience, they promote web sites that are clean and easy to use, discouraging false advertising and low quality web sites.

There are several examples of how different groups of Internet users use and rely on search engines. Eszter Hargittai, Lindsay Fullerton, Ricka Menchen-Trevino and Kristin Yates Thomas (2010, p. 486) present a study on the online behaviour of young adults, their findings include evidence of the focus group relying largely on search engine brands when looking for credible online material. In other research, the participants in the study are made up of students. One recent example of such a study comes from two German researchers, Yvonne Kammerer and Peter Gerjets’ (2014).

Their study springs from previous research showing that the ranking of search results in a search engine is inherently connected to what links the web users choose to rely on. The authors' study consists of further examination of web users' levels of trust in the results presented in a search engine when searching for information on a complex subject. Kammerer and Gerjets (2014, p. 184) conclude that the web search engine users tend to follow a similar pattern, and to some extent they can be said to rely on the position or ranking of the search result in the results page. Thorsten Joachims, Laura Granka, Bing Pan, Helene Hembrooke and Geri Gay (2005, p. 158) come to a similar conclusion, stating that users tend to click on what they perceive as reliable sources, but that they are also affected by the ranking of the results. Hence, the authors see that the users trust the search engines to provide them with relevant results. While these results are beneficial to our study, we must refer to them with caution. When we make statements in our analysis about librarians' search behaviour, it is important to acknowledge that in all examples of this research, none of the target groups are information professionals.

The fact that web search engine users tend to rely on the engine's ranking systems forms the basis of Lewandowski's (2012) study on the credibility of search engines. Lewandowski (2012, p. 1) points out that there is no assurance that the top ranked result is a credible source. Lewandowski (2012) discusses users' trust in search engine, the results they are presented with, and the responsibility algorithms may have to deliver credible sources. Halavais (2009, p. 42) identifies a consequence to the fact that search engine users tend to rely on the ranking system. He reports that when users are provided with a site by a search engine, they will continue to browse it even if they do not instantly find what they are looking for, expecting the search engine to have provided them with relevant information. Therefore, argues Halavais, the user's trust is extended from the search engine to the web site. The research presented above, shows how Google's algorithms directly affect what information the users accept. As both Lewandowski (2012) and Halavais (2009) touch upon, the users' behaviour reflects their trust in the system that they interact with. Therefore, this research presents an important aspect of how trust in Google can be understood.

Another issue connected to the impact of Google on our online activities, is the lock-in phenomenon. Hung-Pin Shih (2012, p. 738-739) explains that lock-in occurs when the simplest course of action for a user is to stay faithful to one service provider. Shih describes how when a user has purchased and learned how to use a particular hardware, which in turn involves certain software, it is costly in terms of time, effort and money to switch to another provider. As previously explored in this chapter, Google provides a multitude of services available to each and every user via one account, which means that using one of Google's services usually leads to the use of others. Segev (2010, p. 67) highlights this aspect of Google's ambitions, stating that as Google attempts to fulfil all of its users' needs it also binds its users to them. The author argues that this 'locking mechanism' works to make the user more dependent on the services, and also makes it more difficult and expensive to switch to an alternate provider. Segev (2010, p. 68) observes that lock-in can be perceived as Google's power over its users and states that "one can see the expansion of information service ultimately as a means to expand and strengthen control over information commons and their users." Marcelo Thompson (2011, p. 165) also sees the lock-in phenomenon in Google's activities, and notes that while Google might not

lock-in its users on purpose, Google's domination on the information market still has that effect.

As we can see, the ways in which Google and all its services are designed, influences not only how we behave online, but also how we perceive the world around us. The impact of Google makes it imperative to gain an insight into what our reliance on Google brings, not only for the LIS researcher but also for the general public. While we see how Google can be regarded as a credible and neutral service, we identify ways in which that is not an accurate description. A public that is uninformed about the nature of Google is problematic from a democratic point of view. Therefore, it is important to study how librarians - who work in an institution founded on democratic values - actively work to stay informed and mediate this knowledge.

The Librarian's Role in a Digital Landscape

Technology has, in many ways, long been intimately related to library work, and as it develops, so too does the role of the librarian. In this section, we review research that examines libraries and librarians and their evolving roles in relation to technology. Since we, in our study, strive to acquire an insight into how librarians work with a particular technology, in this case Google, it is important to place this specific relationship into a greater context. By exploring the character of today's librarianship we can analyse the role of the librarians in the networks.

The understanding of the librarian's role has shifted over time, moving from a position of being an information source, to providing others with the means of finding the information they seek. In his explanation of cognitive authority, Patrick Wilson (1983, p. 13) determines that the concept involves a person, who is regarded as an authority on knowledge in a particular context, by at least one other person. Therefore, the author makes it clear, one cannot be a cognitive authority in isolation, a person can only have cognitive authority in relation to other people. According to Wilson (1983, p. 14), a cognitive authority cannot be self-proclaimed; instead, it is assigned to a person by others who recognise that person's influence on their way of thinking. Wilson (1983, p. 15) argues that when we see someone as a cognitive authority, we base this on their perceived credibility. He maintains that being credible involves two components; competence and trustworthiness. Wilson's definition of trustworthiness involves a person being honest and striving to be correct in their statements, and competence is to treat an area of knowledge with accuracy. Wilson further explains that we consult cognitive authorities, referring our queries to them. A cognitive authority has, according to Wilson, knowledge about knowledge: "the cognitive authority's competence consists not only in being able to give us information about the world (first-level information) but in being able to advise us on how we should treat certain pieces of information." While Wilson presented his ideas over 30 years ago, we feel that this perspective is still relevant in a discussion on the role of the librarian in a digital landscape.

In fact, Wilson (1983, pp. 179-181) discusses how the idea of cognitive authority can be applied to the librarian. He questions whether the librarian might be seen as an authority on authorities. Wilson identifies an authority on authorities as a person who can be trusted to direct others to authorities that can be trusted. Moreover, this person

is not required to be knowledgeable on the specific topics, instead, states Wilson, an authority on authorities need only have a way to identify other cognitive authorities. Wilson concludes that librarians may be seen as an authority on authorities since they hold a unique position, having access to a great store of materials and are particularly well suited to assess the quality of this material. We see how the view of the librarian as an authority on authorities can be an example of a traditional view of the librarian's role - someone who is in a position of power over what information should be accessible. However, as research suggests, today there is a movement toward the librarian being a guide to help users to independently navigate through information flows and select the material they require.

The influence of technology is a recurring theme in literature that deals with the role of the librarian. Trine Schreiber (2006, pp. 38-39) observes that the librarian's role as information expert or information mediator is elevated today due to the growing predominance of digital information services. Sundin (2012, p. 141) sees a changed cultural landscape shaped by technological developments that have altered the conditions of how culture is produced and mediated. Gunilla Widén and Maria Kronqvist-Berg (2014, p. 1) point to a similar development, stating that the adaptive nature of digital advancements is reshaping the information environment. Widén and Kronqvist-Berg (2014, p. 3) go on to discuss how this situation affects the professional role, noting that while librarians generally have good technical competence and are keen to adapt, they sometimes struggle to implement new technologies in their organisations due to lack of confidence and time constraints. Furthermore, Widén and Kronqvist-Berg (2014, p. 7) see the need for librarians to be receptive to change and to understand users' search behaviour in order to offer quality services and meet new demands. Sundin (2012, p. 147) questions what the role of education and cultural institutions will entail when their influence as mediators of culture is reduced and other ways of accessing information and culture expand. Similarly, Catarina Eriksson and Angela Zetterlund (2008, p. 17) speculate that, while new technology may increase access to information, it may also be difficult to control. However, the authors remark that new technology within the library's services should be viewed as an extension of the library, rather than as a replacement. Due to technological advancements, the authors see an ongoing change to what librarianship entails, which have both positive and negative effects. As a current example of such technology, Google's expansion creates a need to gain an understanding of the ways in which librarians interact with Google.

At the turn of the millennium, Lars Höglund (2000, p. 17) observes how new technology leads to the importance of the librarian working as a guide in using information tools and finding information in this changed landscape. Sundin (2012, p. 152) follows up on this position, declaring that schools and libraries can work to improve information literacy, and such efforts involve generating a greater critical understanding of how we tend to access information today. This guiding role of the librarian is also emphasised by Halavais (2009, p. 113) who opposes the idea that the Internet has fundamentally changed the role of the librarian; instead, he argues that mediating information is always at the core of a librarian's activities. As a result, Halavais remarks, a librarian's work may involve guidance on how to use digital tools, such as educating users in how best to use a search engine.

The importance of the librarian's role as guide is clearly identified in recent LIS research. Under the new banner of *Media and Information Literacy* (MIL), current research addresses the librarian's role in a changing information landscape. In the foreword to a Swedish research anthology from 2014, Niclas Lindberg (2014, p. 5) presents MIL, a term cemented by UNESCO in 2011:

The definition of MIL includes a number of skills we all need in order to actively exercise our democratic rights in today's digital society. These skills incorporate digital competency or information competency, which describe the ability to seek, find, critically assess and use information for different purposes and in different contexts. (Lindberg 2014, p 5. Our translation)

MIL is a response to a changing information landscape due to digital advancements, and this term is increasingly raised in LIS research. Researchers point to the need for librarians to work actively to increase the public's level of digital literacy. In fact, Louise Limberg and Mikael Alexandersson (2009, p. 3260) argue that when we seek information we also learn, which makes the librarian's pedagogical role increasingly important. The authors stress the shifting focus of librarianship, from information management to instead providing its users with guidance in how to find and relate to this information.

LIS researchers, who study the changing conditions of how we access information, tend to address the influence of search engines where Google Search is predominant. The ascendancy of Search as the search engine of choice, assigns a new level of importance to questions of the library's democratic role. Sundin and Rivano Eckerdal (2014, p. 11) emphasise the fact that Google makes the complexities of information management appear simple. The authors point to the ways in which Google presents sources of shifting character next to each other and are not ranked according to any traditional value system. Sundin and Rivano Eckerdal (2014, p. 11) identify a problem with Google's influence; when sources created with different purposes appear equal in this way, users can find it difficult to assess the sources' relevance. A consequence of Google's role in information retrieval is, according to Sundin and Rivano Eckerdal (2014, p. 11. Our translation), that "the support previously at hand for people evaluating information culture and knowledge has undergone fundamental changes over the last few decades." Rivano Eckerdal and Sundin (2014 p. 147) conclude that by librarians working actively with MIL, the inherent complexities of searching and finding information can be brought to light. Following this line of reasoning, we can see that the librarian's pedagogical role is increasingly important from a democratic perspective. The new conditions bring challenges to the librarian's day-to-day activities; this is especially the case when mediating how to best use search engines in an informed way, particularly Google Search.

Hanna Carlsson (2013, p. 48-49) discusses how digital information and communication technologies have a great impact upon the public library's activities and their future direction. Carlsson observes that the public library has a complex relationship with digital innovations, which some see as competitors to the library institution, while others see them as a necessity that must be adopted in order for the library to stay relevant. In her literary review, Carlsson notes that in LIS research opinions are voiced that this eagerness to adopt new technologies must involve a greater critical discussion. As we can see, Carlsson (2013), similar to other researchers within LIS,

identifies the importance of the relationship between librarians and technology in the development of a library's activities. We agree with Carlsson's (2013, p. 49) observation that the critical review of how new technologies are used in libraries, is lacking. During our information gathering process, we noticed that, while we did find literature on how Google can be used at a library, critical analyses of such practices are few and far between. Therefore, we call for further research following up on Google's presence at the library, and what the potential consequences might be to those working as public servants in an information landscape heavily influenced by a profit-making company. With this study, we endeavour to make a contribution to this discussion.

In this section we can see that a librarian's role is dynamic and has developed over time. Along with technological advancements, librarianship takes on new characteristics. Today, more than ever, it is vital for the librarian to act as a guide in the information landscape, especially with regards to Google's influence on search behaviour. We acknowledge the idea that it is important to assume a critical standpoint in relation to these developments, and that more research within LIS on these issues is needed. Furthermore, our theoretical framework means that we see trust as an inherent part of our relation to technologies, and research with this added perspective is, as far we can see, missing from the field.

Trust in a Digital Environment

In the following section, we examine the ways in which trust can be understood in a digital context. In order to understand how trust can be manifested in librarians' work with digital tools, we look at those aspects that are central to research on trust in technology. We explore the requirements of trust in technology and what attributes the trusted party must have in order to be trusted. Following that, we present an understanding of how technology can be deemed trustworthy.

The idea of what trust is can vary greatly depending on the context, and the concept has been examined in many different fields of research. While theories on trust historically tend to pertain to that between human beings, the presence of research on trust in sociotechnical systems is ever growing. D. Harrison McKnight, Michelle Carter, Jason Bennett Thatcher and Paul F. Clay (2011) study the differences between research on trust in people or organisations, and trust in technology. To illustrate these differences, McKnight et al. (2011, p. 4) present some of the similarities and differences between the two concepts. The authors state that all forms of trust, whether it is placed in people or technology, feature risk and uncertainty. By this statement they mean that, when using a technology or relying on a person, there is always a risk that they will not perform as expected. A person cannot control whether the tasks that are expected to be fulfilled actually will be, which may have negative consequences. According to McKnight et al. (2011, p. 5), as opposed to trust in people, the factors of moral agency and volition are not applicable for trust in technologies. As for the expectations of the trusting party, the authors point out that when trust is placed in a human, he or she is expected to have human qualities, such as being considerate and having a sense of morality. McKnight et al. argue that when trusting technologies, the expected attributes of the trusted party have more to do with efficiency and reliability. We want to nuance this description of trust in technology.

In our study, we would argue that it would be problematic to view Google as a technology completely without agency. In our examination of Google, we see examples of how Google works in its own interests, as well as that of its users. While we recognise that there are people behind Google's technologies, our study focuses on the trust that a user places in the digital interfaces rather than in the architects behind them.

In their partly qualitative and partly quantitative study, Jie Xu, Kim Le, Annika Deitermann and Enid Montague (2014) examine what trust in technology is based on, by studying active and passive technology users. While the specifics of what constitutes an active and passive user is not directly relevant to our study, Xu et al. (2014, p. 1499) conclude that a user deems a technology trustworthy based on the attributes of the technology itself, the user's abilities and the task performed. The authors describe how the factors that make a technology trustworthy include flexibility, reliability, usability, its appearance, and how user abilities include personality and confidence. The term 'confidence', according to Xu et al. (2014, p. 1498), involves the users being confident in their own abilities in relation to the technology. Instead of examining human beings' trust in technology, Asle H. Kiran and Peter-Paul Verbeek (2010, p. 411) argue that the focus should lie with how humans trust themselves in dealing with technology, rather than their trust in technology. Trust here has the character of confidence, of trusting oneself to technology.

In his study on trust and confidence in a financial crisis, Timothy C. Earle (2009, p. 786) makes a distinction between confidence and trust, and argues that confidence is based on previous experiences. Our level of confidence arises from our rational thinking, rather than blind faith and the author notes that when we have confidence in something, we expect certain future outcomes. According to Earle, we establish trust based on an entirely different set of criteria; instead of being evidence-based, trust arises from our emotions. Pieters (2010) gives a nuanced account of the concepts of confidence and trust, drawing on Niklas Luhmann's theories. Pieters (2010, p. 55-56) declares that confidence involves not being aware of the risks of using a system, nor seeing alternatives, and being certain that the system is secure. On the other hand, trust, according to Pieters, involves seeing risks and alternatives, and choosing to use a system. The difference between the two terms, therefore, lies in the making of a decision.

Pieters (2010, p. 55) argues that trust involves relying on another party and having the conviction that the expectations placed in said party will be met. Pieters sees expectations as part of our everyday lives and that we often neglect possible risks; "In daily life, we rely on many expectations without consciously considering the possible impact of failure." Similarly, McKnight et al. (2011, p. 3) acknowledges the element of risk, noting that trust occurs when a person is made vulnerable by depending on another person or artefact. The authors continue by stating that trust in technology tends to involve trusting a technology to perform a certain task; however, just as in the case of trust in people, there is an element of vulnerability here. McKnight et al. (2011, p. 4) reason that this is true for trust in technologies also, as when a trusting party relies on a technology to perform a task; there is always a risk that this task is not fulfilled. This argument is similar to Giddens' statement that trust

is inherently connected to risk. As we can see, expectations are a part of trust. For example, we expect and trust other people to behave in a certain way, and this expectation is necessary for all of us to function in society. We can see that having expectations also involves being vulnerable and exposed to risk.

Trustworthiness is a central issue in several studies on digital trust. While trust is an integral part of relationships, trustworthiness is seen as an attribute of someone or something. In her paper, Judith Simon (2010) looks at Wikipedia as an example of an epistemic system and how it relates to the concept of trust. Simon (2010, p. 348) argues that there is a connection between transparency and trustworthiness. She makes this claim in her study of Wikipedia, and concludes that the level of transparency in Wikipedia as a system is relatively high because the users can make changes to the content, and these changes can be traced. The author goes on to argue that it is precisely because the system is transparent that it is also generally viewed as trustworthy. Simon (2010, p. 350) finds that there can be many levels of transparency depending on the actor's level of knowledge. To exemplify Simon's argument, we can use the metaphor of a car. For a mechanic with great knowledge of the inner functions of the vehicle, the car has a high level of transparency. Following this position, the car is trustworthy to a corresponding degree. For the layman, the transparency of the car is low, because they have no special knowledge of how the vehicle works. The car, therefore, seems less trustworthy to the layman, who instead must have a greater level of trust in the car when driving it. We contend that a similar understanding of trustworthiness and its connection to transparency can be used when studying Google. Furthermore, Simon (2010 p. 354) argues that we all should strive to be *responsible knowers*, being aware of the risks involved when using an information system. She recognises the fact that we all have to place trust in knowledge provided by others in order to progress, and that it is important that responsible knowers understand that this trust makes them vulnerable.

In many descriptions of trust, the notion of authority is key. As seen in the previous section, a cognitive authority is, according to Wilson (1983, p. 15), a credible (competent and trustworthy) person that one can refer to for information within a particular field. Similar thoughts on placement of trust in authorities can be seen in research dealing with technology. Clay Shirky (2009) introduces in a blog post the concept of algorithmic authority, which involves the idea that there is a particular type of trust in information that we obtain online. As opposed to the trust that a person may have in another person, algorithmic authority according to Shirky (2009, n.p.), involves seeing an algorithm as an authoritative source: "it is the decision to regard as authoritative an unmanaged process of extracting value from diverse, untrustworthy sources, without any human standing beside the result saying 'Trust this because you trust me'." Shirky asserts that there are three criteria that must be fulfilled in order for algorithmic authority to be established. Firstly, it includes information from a variety of sources that are not in any way verified by any other acceptable process or a human actor prior to being published, the author sees Google's algorithm PageRank as an example of this. Secondly, Shirky (2009, n.p.) argues that a system becomes an algorithmic authority when "it produces good results, and as a consequence people come to trust it". Thirdly, Shirky contends that people are influenced by the trust of others in their immediate surroundings. When realizing that others trust a source, the source is perceived as an algorithmic authority.

Our presentation of research on trust in technology illustrates that there are many aspects to consider. When placing trust in a technology, certain criteria must be fulfilled which differ from those necessary for a person to be trusted. The use of technology involves making oneself vulnerable, and placing trust in technology brings with it an element of risk. The trustworthiness of a technology can be understood as being inherently connected to its level of transparency. Therefore, since a technological system can be understood differently by different people, the system's trustworthiness can shift accordingly. Linking back to our discussion on cognitive authority in the previous section, we can see that, similar to the way that trust is placed in cognitive authorities; algorithmic authorities are trusted to provide information.

Summary

In this chapter, we present research on three aspects relevant to our area of study. Firstly, we highlight matters that are commonly raised in discussions on Google. Secondly, we explore research on the role of the librarian especially in relation to the evolving digital climate. Thirdly, we present ways in which trust in technology can be understood. The purpose of this chapter is to illustrate central issues when studying librarians' potential trust in Google, thereby generating an understanding of how these three aspects intersect.

Method

Since the aim of our study is to gain knowledge about the ways in which librarians trust Google, we attempt to acquire insight into their daily work activities. In this qualitative study, our chosen approach for the production of the empirical material is through interviews with librarians. ANT can be used as a methodological approach to the research process, and it influences our study. Its presence can be seen in our work process, from the design of the interview guide to our analytical approach.

According to Latour (1999, p. 19), the researcher views the actors as experts on their own behaviour, it is the actors that know what they do and why. Commenting on using ANT as method, Mats Alvesson and Kaj Sköldbberg (2009, p. 32) state that this usually involves carrying out interviews and observations. These types of methods are generally consistent with the distinctive motto of ANT: 'follow the actors'. A study using observations as method, would concentrate on the actors' actions in the sociotechnical system of which they are included. However, this has not been a suitable method for us in this study because performing observations on this particular behaviour would in many senses be problematic. One tends to use Google at different times of the day, often at short intervals and sporadically. Therefore, observing these actions would probably be time consuming and therefore not a suitable option for our time schedule. Our solution to this problem has been to instead obtain our empirical material through interviews. Using interviews, the focus of our inquiry has been to investigate the informants' actions related to Google, which gives us the added perspective of their own thoughts on these actions.

According to ANT, all actors in a network, whether human or nonhuman, have an equal value and should therefore be ascribed the same level of importance. There is a risk in our type of study to give disproportionate attention to human actors. However, we study Google services as actors by interviewing those who use them and by referring to literature on the subject. To maximise the information that we can gain about the perception Google from the interviews, we saw it as important to select our informants with care, and seek those who have a deeper knowledge of issues regarding digital information.

Qualitative Interviews

We have applied a semi-structured technique to our interviews, which means that the format of the interview is only partially determined beforehand. Steinar Kvale (1997, p. 117) outlines the semi-structured interview, noting that it may involve several themes and questions that can easily be altered or modified. These elements apply,

argues Kvale, not only to the questions themselves but also to the original order of the questions. However, the term 'semi-structured interview' can be interpreted in different ways. Jan Trost (2010, p. 42) questions the use of the term 'structured' when describing an interview, he points out that qualitative studies often have a clearly defined framework, while the questions themselves may be structured to a much lesser degree. Therefore, Trost is reluctant to call an interview semi-structured and instead prefers the term 'structured', which implies that the interview itself is structured while the questions are open-ended. While we agree with Trost's arguments, we have still selected to use the term semi-structured, since this remains the generally accepted term for our chosen method.

We selected the semi-structured format because we wanted to have a conversation with the informants, and yet have some predetermined themes and questions for guidance. We find support of our choice of interview format in Michael Meuser and Ulrike Nagel's (2009, p. 31) reasoning on the expert interview. The authors contend that experts tend to supply more relevant information when given the opportunity to talk freely about their work by giving examples, improvising and spontaneously exploring a subject, something that is possible in an open interview and not, for example, in a questionnaire. This interview format thus allowed us to get a picture of the informant's perception of Google, without running the risk of controlling the informant's thought process by using too detailed questions.

During the design of our interview guide (see attachment 1), we kept Meuser and Nagel's (2009, p. 31) guidelines in mind. They claim that an open interview should not include closed questions or be too fixed in its structure. Instead, the authors recommend that this type of interview should be centred on general topics that allow the interviewee to elaborate on their reasonings freely. When we designed the interview guide, we formulated general topics that concerned our research question and our theoretical viewpoint. While the interview was open, and the focus of each interview naturally varying with each individual informant, we attempted to shape the discussion so as to gain specific material that could be understood and analysed with ANT terminology. We were interested in the informants' actions at work in relation to Google, and their descriptions of other actors in the network. This strategy assisted us in our efforts to glean information about the interplay between actors.

We carried out nine interviews with ten informants. These were conducted over a five-week period and in a place of the informants' choice, which, in all but one case, was at their place of work. One of the informants chose to meet us in a meeting room in the LUX building at Lund University. We carried out a test interview with a fellow student before commencing the interviews, which helped us to see which questions were fruitful and which were not, and we modified our interview guide accordingly. All interviews were recorded and lasted between 40-60 minutes long. We were both present as interviewers in all sessions, but one of us would assume the leading role, following the interview guide, whilst the other would act in a supportive role, taking responsibility for asking follow up questions. Detailed notes were not required, since the interviews were recorded. The transcription was completed in a separate document within a short time after each interview session.

Selection Process

We have interviewed informants who work with information management and digital information on a daily basis. They are professionals who are knowledgeable in information management and retrieval. Interviewing individuals from this particular group gives us an informed perspective and enables us to reach an in-depth study of our question formulation. Our informants can be regarded as experts since they are educated librarians with professional experience within the field. According to Meuser and Nagel (2009, p. 18), an expert's knowledge must be separated from that which can be described as common knowledge or common-sense knowledge. In this sense, they argue that an expert is someone who possesses a certain skill set that they share with others, but not all within their professional field. Following this argument, a librarian can be seen as an expert within the field of their professional activities. Our informants are regarded, by their immediate or neighbouring colleagues and by us as researchers, as having special knowledge on issues concerning Google. There are certain benefits attached to interviewing experts which are highlighted by Alexander Bogner, Beate Littig & Wolfgang Menz (2009, p. 2). The authors remark that when the informants are experts on the subject, this helps the researcher to rapidly gain relevant results. Repstad (1999, p. 28) notes that the researcher may benefit from having some prior knowledge on the subject, as it can lead to a better understanding of the subject and ultimately better conclusions.

We have applied the convenience sampling method for our selection process. Jan Hartman (2004, p. 243) explains how this principle involves selecting people who are close at hand. Hartman clarifies that this could mean that the informants are made up of the author's friends or colleagues or alternatively strangers within reach. As a consequence, all of our informants work in the same region as we do, the county of Scania, in southern Sweden. The nature of this selection means that the informants are not representative of the target group. However, in this particular study, our aim is to gain knowledge about how librarians interact with Google, and to generate an understanding of trust in this relationship, not to make a statement about librarians' Google activities in general. As we wish to nuance our limited number of informants, we have selected informants from several different types of libraries, in order to achieve a greater sense of perspective than we would have had if all of our informants had been chosen from the same organisation.

All the informants work at different libraries, and therefore, each of them provides a unique perspective on their professional relationship with Google. However, they cannot be seen as representatives of their particular branch, but must be viewed as individuals with their own perspective. We have, where possible, followed the recommendations of friends and colleagues in finding and selecting our informants, using the so-called 'snowball-method'. Hartman (2004, p. 244) explains how this entails asking people in one's circle of acquaintances to refer the query of interest to people they know that would be willing to participate. Our selection of informants may also have worked to our advantage from a practical point of view. Since we ourselves are students of Library and Information Studies, we share similar points of reference with our informants. Bogner, Littig and Menz (2009, p. 2) describe how these shared elements can mean that the expert feels more inclined to participate in the first place. They also point out other potential added benefits, whereby the informants may be

more likely to have a professional interest in the subject and the scientific field in which the study takes place.

However, Bogner, Littig and Menz (2009, p. 5) are also careful to point out that experts must not be seen as a “source of objective information” and that it is important to reflect upon expert interviews and how they are utilised. The authors conclude that expert interviews (similar to any other method) “require careful validation and a solid theoretical basis” and add that one must not see this type of interview as a way to simply gather information, something that we have kept in mind throughout our work process. In fact, we prefer Ahrne and Svensson’s (2011, p. 22) idea of the interview being a way to produce empirical material as opposed to collecting it. Bogner and Menz (2009, p. 70) have a similar opinion, stating that it is important to remember that when the empirical material is analysed, it must be understood as having been produced in the interaction between interviewer and interviewee. For example, the authors point out that the informant’s testimony is shaped by his or her perception of the prior knowledge and interest of the interviewer. Consequently, we see ourselves as involved in the process of acquiring our empirical material, which means that we must bear in mind the potential effects that our involvement in the research process may have.

Ethical Considerations

Our first consideration when conducting our study was to scrutinise our own relationship with Google. Most of us have a relationship with Google and we, as authors of this text, are no different, having both a professional and personal connection to this subject. In many aspects we both work and play within the parameters of Google; our essay is written in Google Drive, we communicate online via Gmail and Google Hangouts, find articles in Google Scholar, and access our favourite sites via Google Chrome. Therefore, this is very much a study from within the Google room. As Haider points out in the introductory quote, it may be problematic to conduct a critical study of Google from within, a problem we are aware of. However, the fact that most of us interact with Google, both at work and at home, makes it inherently difficult to have an outside perspective. Still, it is our ambition to maintain a critical approach to our understanding of Google and its services.

Regarding the practical execution of the interview, there are several factors to bear in mind. Annika Lantz (1993, p. 108) discusses the parameters of interviews, stating that it is recommended to have an agreement in place between the interviewee and the interviewer before the interview takes place. She notes that such an agreement should include, for example, background information, any expectations that the parties may have, and feedback after the interview. Repstad (1999, p. 68) also emphasises the importance of informed consent when conducting interviews. He also highlights some of the Swedish ethical research rules that state that the informant must be informed of the purpose of the study, that they and their personal information should be treated confidentially, and that any information gathered about these persons can only be used within the scope of the research project. Bearing these parameters in mind, we created a written agreement, which we e-mailed to our informants before the interview took place (see attachment 2). We briefly introduced our project verbally

before commencing the interview with each informant, and again asked for consent to record the conversation. We have also offered to provide each informant with the transcribed material.

As previously noted, our informants are all active within the same professional field as ourselves and can, in three instances, be described as our colleagues or acquaintances. Repstad (1999, p. 27) highlights the fact that it can be problematic to select informants that are either known to the researcher or within the same professional field. He argues that the researcher may risk losing his or her professional detachment, or have personal vested interests in what occurs during the project. Repstad also points out that the researcher may also censor certain information, so as to not risk a friendship. Naturally, it is important to be aware of these potential problems, and we have made sure to bear them in mind during our analysis. However, we feel that there was little noticeable difference in our interviews with regards to whether we previously knew the person or not. The fact that our questions have not been of a directly personal or sensitive nature, and there being no need for the informants to “impress” us, may also have been a factor in simplifying this process. Additionally, we have attempted to make it clear to our informants that we ourselves are Google-users, and that we are curious about their behaviour with regards to Google, without being judgmental.

With regards to our analytical process, we were careful in the way we managed the empirical material. Throughout the process, we have strived to stay vigilant with regards to not misinterpreting, and thus misrepresenting, the words of the informants, as well as to not add additional meaning to their statements. All of the informants’ transcribed quotes are translated by us, the authors of this study, from Swedish to English. We have been careful to stay as close as possible to their original wording, while also ensuring readability, in the final text, by removing certain non-meaningful repetitive wordings and utterances like “eh” and “ehm”.

Analytical Approach

Our analytical process began after completing our first interview. From then on, we would familiarise ourselves with the empirical material throughout the whole information production process. From the outset, our analytical process has consisted of making notes while transcribing each interview, seeing connections between previous research and our empirical material, and discussing various points of interest with each other. Once all interviews had been carried out, we allocated some time to read the printed transcribed material thoroughly, thus we individually conducted a close examination of the material, looking for patterns. Practically, this work involved marking recurring and noteworthy sections with differently coloured Post-Its. Next, we reviewed these patterns and collaboratively produced a number of concepts that described these patterns. We organised these concepts into three broad themes. This approach follows Kathy Charmaz’ (2006, p. 43) procedure of coding, which she explains is a way of establishing an understanding of what the data describes. Charmaz states that coding is to categorise the selected empirical material and goes on to explain that when the researcher labels a category, the content of the category is thereby defined, which allows the data to be organised.

During the next stage of our analytical process, we cut out the marked sections and placed these in the corresponding theme. At this stage of the process, the library type from which the informant is stationed was secondary to identifying the statements that made up the patterns. Later in the process, it would be important to keep track of who had made each statement so that we would be able to identify potential differences in the work roles. After having organised all relevant material according to these three themes, we examined each theme carefully and constructed a number of subcategories.

In order to establish a cohesive analysis, we restructured these subcategories of the informants' statements into three new themes, which provided us with three headers in our analysis. These were constructed with our theoretical context and previous research in mind, and were specifically designed to enable us to answer our research questions. In the course of sifting through the empirical material, we found that there were a number of subcategories that were not beneficial to the process. As we selected to include some data, we automatically deselected other information. Jens Rennstam and David Wästerfors (2011, p. 195) remark that this filtering process involves necessary choices that are connected to the chosen theory and previous research on the subject. This meant that any material that did not help us answer our research question was excluded. Our analytical process made it possible for us to identify and present material that allowed us to establish a logical structure. Connecting our chosen theoretical context and previous research with our empirical material facilitated our efforts to conduct a thorough analysis.

Analysis

This chapter offers a combined presentation of the results and analysis of the study. We begin by presenting the informants, detailing the type of library they work in and giving a description of their main duties. The analysis is structured around three themes that, in different ways, address the working relationship between librarians and Google. We have chosen to call the sections *Choosing Google*, *Understanding Google* and *The Risks of Using Google*, in which, on the basis of the empirical material, we carry out a dialogue with the ideas in our theoretical framework, as well as the concepts of previous research. Naturally, it can be problematic to order the topics identified in the empirical material, since they interlace and overlap. Nonetheless, we have chosen this structure because it provides us with a way to approach those issues that are important to highlight in order to answer our research question. We examine the presence of Google's services in the informants' place of work, and look at the ways that they are used in their work activities. By tracing the informants' actions, we can identify several other actors within the networks and gain an understanding of what their roles involve. We connect to Giddens' thoughts on trust, as well as previous research on trust in technology, to gain a deeper understanding of how trust is a part of the described social contexts.

Description of the Informants

The informants are all librarians and work at different types of libraries, which include academic, public, school and hospital libraries located in Scania. Some of the informants work within the same organization, but are stationed at different branches. The informants' names as presented in this study are all fictitious. In this section, a brief description of each informant is presented whilst detailed information is left out in order to maintain confidentiality.

Adam is a school librarian. The library is located in a high school with a focus on academic studies. Adam's day is varied and involves work at the library, as well as in the classrooms with teachers and students.

Beth is an academic librarian. She divides her time between internal communication and acquisitions. She also runs teaching sessions on information retrieval.

Christine is an academic librarian. She works with the library's internal and external communication, such as the library website, social media, printed material and library promotion. She also coordinates projects within the organisation.

Danielle is an academic librarian and is part of a team that works with different services that the library offers its users. The particulars of her role varies depending on what project she is currently involved with.

Emma works at a public library. Her days are varied, but include work on a national level. She is also involved in several other local projects, and often holds teaching sessions and courses.

Frank is a school librarian. The school that the library belongs to, primarily runs occupational preparatory courses and adult education programmes. The municipality has implemented Google Apps for Education in all schools, as their standard communication system.

Gina and Helene are hospital librarians. Aside from managing the library during opening hours, they also provide books for the patients on the hospital wards. Moreover, both Gina and Helene hold teaching sessions, guiding the hospital staff in how to use the library databases.

Isaac is an academic librarian and works with providing assistance for researchers, which can, for example, involve holding teaching sessions on information retrieval, as well as managing electronic journals and e-books.

John is an academic librarian at a library that serves several disciplines. He is a subject librarian and his work is mainly focused towards students and researchers within the subjects that he is responsible for. He also holds teaching sessions for colleagues and library users.

Choosing Google

The informants depict workplaces where Google services are commonplace and they mention many different services during the interviews. For example, Gina and Isaac both mention that they have used Maps while at work. Isaac notes that “if I need geographical information, location information, then I use Google Maps, both at work and at home.” Another commonly used service is Scholar, which Beth employs for certain purposes: “when it comes to scientific material, I don’t use the ordinary Google, but I can for example use Google Scholar.” Another Google service that Beth mentions is Translate. Gina also uses Google Scholar and its alert system in order to keep up to date on certain topics. She explains: “if you search for something and want to know when new articles arrive on the topic, you can receive alerts.” Other services mentioned by the informants include, Hangouts, Google+, and Calendar. All of the different Google services highlighted by the informants point to the trend that Van Dijck (2013, p. 163-164) observes, regarding how Google is expanding to serve many different activities. In our further examination of the informants’ activities, we find that Google’s web browser, search engine and cloud-application are the most prominently used services.

While the preferred choice of web browser varies, most of the informants state that Chrome is their web browser of choice because they feel that it is the best one available. One of those choosing Chrome is Helene, who states: “I use Chrome, a lot,

I do at home too, I think it's good." Emma agrees while also taking the time to reflect upon the reasons for this being her chosen browser, remarking that she would prefer to use Firefox (as she indeed used to) but feels that it is no longer competitive in terms of efficiency. Danielle, on the other hand, is one informant who favours Firefox over Chrome, motivating her choice by saying: "partly, I think it's the best, and partly we actually use services here at work that function optimally in Firefox." Isaac makes a similar observation, noting that he uses Chrome when it performs a function better than other available browsers, but that this can depend on what the purpose of his activities are. The informants' choice of browser is, to an extent, influenced by its performance and functionality with other software. These are important factors in the informants' choice of web browser, indicating one way in which Google may achieve its popularity.

As the informants explain why they use Google's services, we note a recurring opinion that Google is "seamless", "intuitive" and "easy to use", with a high level of functionality. John explains that he finds it difficult to answer the question of how he uses Google, because it requires a specific answer: "you use it all the time, I mean... it is too user friendly." Emma also comments on the extent to which she and her colleagues use the services, stating: "We use Google a lot. Because it is simply the best." Talking about Search, Gina voices a similar opinion: "it's just that they're very good, you get very good search results when you search there." The fact that Google's services are perceived as user friendly and seamless can explain their popularity in the workplace, but as we study the material further, the factors behind their wide use can be interpreted in other ways. Exploring these matters provides us with an awareness of the networks and the interplay between the actors within them.

The Google service arguably most commonly used by the informants is Search. Isaac is one of many informants who explains that he uses Search on a daily basis, stating: "yeah I probably use it everyday, simply to do web searches, I think it [Search] is the most important one." The purpose of these searches is often to find a specific piece of information; as John notes, the target can be "a Wikipedia article that answers your question" or a particular website. In addition, Search plays a role in other activities at work. Emma regularly uses Search when answering library users' online reference questions, and Christine has Search as the home page in her web browser. On the other hand, when it comes to the use of Google's services, Frank stands in contrast to the other informants. Taking Search as an example, he states that he uses it at work, but emphasises the fact that he avoids using it at home:

Frank: I don't use Google at home.

Liv: You don't?

Frank: No.

Liv: Not at all?

Frank: No.

(From interview with Frank, 2015)

Search is a frequently used service for most of the informants. Another common service is Drive, which a majority of the informants use on a regular basis.

Drive is used extensively in the schools, where Adam and Frank work. Adam observes that Drive is frequently used by students and teachers: “many teachers use Google Apps and we, I mean, the students live in this too, sharing back and forth in Google Drive.” However, at Adam’s school, Google’s services are not a prerequisite established by the school administration in the same way that they are at Frank’s place of work. In contrast to Frank’s situation, the management at Danielle’s place of work do not enforce the use of Google, but she still uses Drive to a great extent and describes why: “had the university provided services that could perform similar tasks [...] then I would rather have used them. But, since the university doesn’t there are no alternatives.” Danielle remarks that she uses Drive because her place of work does not, for her, provide a viable alternative to it. The informants’ use of Drive varies; Emma, for example, says that out of the different Google services, she uses Drive a fair amount. Isaac on the other hand, makes it clear that he has not used the application for some time: “it’s probably some time ago, some years, since I really needed to work in Google Docs, which perhaps is because I’m not part of any particular collaborative work outside [place of work].” The informants use Drive for different purposes, and although it is often down to personal preference, it can also be a requirement. For John, Gina and Helene, Drive is a collaborative tool that they use together with colleagues.

John provides a recent example of using Drive at work: “I use Google Drive [at home] and also Google Drive at work. I was at a meeting yesterday where we... other members of the meeting uploaded the documents to Google Drive so that everyone in the group could access them.” While Gina and Helene note that they do not use Drive to a great extent, they explain how they have found it useful: “The fact that you can save and work on it collaboratively and stuff like that. If you’re in a project with others in other hospital libraries or other organisations then you can... have a group there.” To conclude, Search is often used for quick search where the informant is looking for a brief answer to a question, and Drive can be used as a collaborative tool in which they can work with their colleagues. These examples show how nonhuman actors can have significant roles within the networks and brief examples of actions reveal a diverse set of actors within the networks. Search, Drive and Chrome are well-used work tools and prominent actors, moreover, we can identify additional, less prominent actors, such as Wikipedia and other websites as well as other Google services. The variety of actors that we can identify, both human and nonhuman, reveal an example of the heterogeneity that Callon and Law (1997, p. 168) maintain are central in networks.

The prominence of certain actors tends to fluctuate depending on the informants’ activities. In the reference interview, the role of Search varies depending on the informant’s target group. In John’s case, Search is used as a tool for information gathering, while in Isaac’s case, Search is not used in the reference interview at all, with focus instead lying on the library databases. Frank describes how he tries to avoid Search in his teaching sessions because it is so commonly used, and does this because: “they should learn to think outside of Google, in order to find other ways to search.” At Danielle’s and Beth’s workplaces, Search is not important to the reference

interview, although it is used in other work situations, as well as for personal home use. For some of the informants, the role of Search functions as a starting point in the reference interview. Adam describes how Search is the main tool that his library users turn to initially, meaning Adam often has to relate to Search in the reference interviews. This is a recurrent theme, Gina and Helene use Search as a starting point with one of their target groups (the patients), whilst encouraging their other target group (the staff) to use the library databases instead. Gina describes their approach of using Search when teaching information retrieval to the patients:

When we were going to hold teaching sessions, we started to think... that... I mean everyone searches in Google so in order for them to understand why they should use the databases [...] we start with Google [Search] and then we proceed to Google Scholar. That way it becomes more scientific, and you compare the results and then you go to a database and look at what you find there and what pros and cons with using the different sources. So it's [Google] more a way to move forward. (From interview with Gina, 2015)

We interpret the librarians' actions through Latour's (1991, p. 104-109) description of translation, which indicates an event where the interests of two entities become aligned. In their endeavour to mediate skills in the retrieval of information, the librarians often turn to Google as a point of departure and in turn, as Google is used, it receives data (see Snickars 2014, p. 281; Vaidhyathan, 2011, p. 90). Here we see translation at work in the way that the librarians' interests are fused with those of Google. Following Mager's (2009) argument that Google can be seen as an active translator, these events may indicate the formation of an obligatory passage point within the networks. Callon (1986, p. 26-27) notes that an obligatory passage point occurs when other actors are made dependent upon it. The informants' activities suggest a form of dependency when they describe how they achieve their goals of mediating information retrieval by using Google's services. Furthermore, these activities show that Google's services are important to a varying degree, meaning that we can see stronger indications of Google as an obligatory passage point in some of the networks.

Translation can also be identified in the informants' other uses of Google's services. Beth, for example, explains how she often uses Search for quick information searches, and that she even uses it when she knows it is not strictly necessary: "sometimes you're so lazy that you can't even be bothered to type in an address or... sometimes you take a detour via Google, more than I think is actually needed." Beth's interests are aligned with those of Google, the more Beth uses Search to get quick search results, the more data Google can collect. In some cases, the informants also highlight interdependence between Google's services, which Christine talks about in her dialogue on Analytics. She explains how, in order to have complete access to the services, she has to use Chrome and not the browser that she otherwise uses at work.

If I want to do certain things, for example look at this kind of map where you can see how many per cent have clicked on different things. In order to produce such data, you're encouraged to use Chrome [...] and then that's what I do. (From interview with Christine, 2015)

As Christine performs this switch of browser in order to be able to use Analytics, we can see translation at work. As Callon, Law and Rip (1986, p. xvii) assert, translation

makes an entity indispensable, and thereby an obligatory passage point. Halavais (2009, p. 47) discusses the agenda of Google, while providing a useful tool for statistics gathering, Analytics provides them with data from users on non-Google websites. When a user is required to use Chrome when working in Analytics, Google makes Chrome indispensable for Analytics and its users, and can be understood to function as an obligatory passage point for these actors.

We see evidence of how one actor can relate differently to another within a network. Such events depend on the context and the actions within it. The dynamic between the librarians and Gmail reveals examples of these variations and addresses the question of having alternatives. A majority of the informants use Gmail, but the way in which they choose to use it professionally and privately varies. Some have opted to have two Gmail accounts, one for work and one for home use, while others have one account for all of their activities. In contrast to the others, one informant only uses Gmail at work and never at home. Danielle explains why she has one account for all of her activities: “it’s easier to just have one account to keep track of, so I use my private one for everything.” In contrast to Danielle’s attitude, Frank’s reason for having one Gmail account is quite different:

Andrea: So you don’t have Gmail either? At home?

Frank: No.

Andrea: But you have it at work?

Frank: I do here. I have to have it here. I still have a private Gmail, but I don’t use it. (From interview with Frank, 2015)

As we can see, the informants have different approaches to using their Gmail accounts and they do it for different reasons. In these cases, we can see signs of the lock-in phenomenon, interpreted in two different ways.

The concept of lock-in as described by Shih (2012, p. 738-739) refers to when a person chooses a particular service provider for a multitude of applications to improve time, energy and cost efficiency. When speaking of Google’s services in general, and what he thinks of them, John provides a clear example of what the lock-in effect can involve:

But this hardware, the phone, is constructed on Google’s software architecture [...] that is Android. So you buy into the whole concept and it’s easier if you buy a complete concept from one company, because it will be more seamless [...]. It feels like the digital use is becoming so segmented today. You have to pick your poison, in a way. (From interview with John, 2015)

Similarly, Danielle’s statement illustrates this phenomenon when she says that she chooses to have one Google account for all of her Google activities. In a discussion about what she thinks about Google’s services, Danielle states that “you can feel that they want to solve everything for you” and later on the same topic, she remarks: “I don’t want to live my whole online life in just one system, but that is what all services want you to do.” Danielle reflects upon this experience and concludes that Google strives to create an environment that the user never leaves. In her statement, Danielle

thus raises the lock-in phenomenon and observes that it is applicable, but not exclusive, to Google. In this way, Google users are routed between the services, meaning that the user is more likely to continue using Google for all their activities.

In Frank's case, we see another example of lock-in, although it has a different cause. Thompson (2011, p. 165) comments that the lock-in effect of Google may occur due to its dominant role on information flows. This influence is one example of the implementation of Google Apps in the school system where Frank works. In contrast to Danielle, Frank is not locked to Google's services at work because it makes his tasks easier, but because he is required to work within the Google system. Frank comments on this development:

The whole administrative body has completely gone over to [...] the Google environment. There's everything from email to working in Drive, and we have built up the whole intranet, the whole web page with an information flow and so on in a Google environment. But it also means that you more and more have to start looking at other applications. If you are to fully work to digitise the education then you have to work more in Google Classroom and so on. (From interview with Frank, 2015)

In Frank's situation, the decision to use Google is made by school management, and his work activities are thus locked to Google's services. While there are different reasons behind the lock-in condition, the end results are the same; alternative systems are not an option for these informants. These lock-in effects can be traced to the prominent role that actors, such as Search and Gmail, have in the networks and the ways in which they prompt the users to continue using services provided by Google.

Moreover, we argue that the concept of lock-in, which entails a lack of alternatives, affects the librarians' trust. The lack of alternatives is an important notion in Giddens' (1990, p. 90) understanding of trust, and he contends that we interact and trust abstract systems because we do not have the option to not use them. In addition, he notes that the only choices we make are made within the system. As we can see in the example of lock-in, the librarians interact and trust Google, whether they want to or not. We have previously seen how there is a lack of alternatives to the informants' use of Google, which can pertain to the ways in which Search translates the activities of different actors and restricts them from using alternate systems. The lack of alternatives is also apparent in the way that the informants are locked to Google's services, further examples of which we see below.

Emma reflects that she finds it difficult to present alternatives to Search when she holds teaching sessions on the search engine, and considers the reasons for why it is so:

Emma: Yes, I think it's quite difficult now to show other search engines, because it is hard to know... there's nothing that is really good. And then you don't end up using it anyway. [...]

Liv: And if they still go home and use Google, then maybe you're better off focusing on it, making it as good as possible.

Emma: Yes, yes. Maybe five, six, seven years ago I would more often show other search engines, but now everyone has lost ground to Google. There were some

interesting initiatives... What's it called? Alpha something [she later recalls that she means Wolfram Alpha]. Yes, but they don't gain any ground. They find it difficult to find their audience and then they don't grow, and the money runs out I guess [...] Interesting initiatives appear now and then but nothing comes of it. Google is too... [...] powerful, and great and has too much money, yes. (From interview with Emma, 2015)

A similar sentiment is expressed by several other informants, who see a lack of alternatives to Search for their work activities. While they are aware of other search engines, and mention several examples, such as Duck Duck Go or WolframAlpha, they do not view them as viable alternatives to Search. Frank reflects upon the expansion of Google's search engine and believes that it suppresses contenders: "if you then have a big search engine, that is like a wet blanket over all of the internet, then you buy... then you end up buying what they give you." In the example of Search, we can here see a perceived lack of alternatives to searching for information online.

In addition to a lack of alternatives, the manner in which Google is used, can inform our understanding of trust. According to Giddens (1990, s. 90), trust in abstract systems is usually routine and a passive acceptance rather than an active choice. Following these ideas, the empirical material reveals examples of how trust can be identified through routine actions that suggest an absence of an active choice. Many informants speak of using Search in a routine manner when performing quick searches in different contexts at work. Beth speaks of her perfunctory use of Search, stating that: "I probably do some kind of quick Google search on almost everything that I come into contact with, just to quickly check what it is." Emma makes a similar comment, noting: "I use it a lot. In principle, it is almost always the first source you go to. [...] At least just to sound out the terrain." The informants' responses suggest a tendency towards routine and habit, rather than their making an active choice.

The informants' activities indicate a stabilisation of the use of Google's services in their professional environment, by which we can discern a lack of alternatives. It is noteworthy that the absence of alternate services does not always pose a problem. Christine discusses the use of statistical tools in libraries, observing that it is a problem that many different statistical tools are used, and that they all have variances in their parameters. She feels that if all libraries used Analytics, this problem would be solved.

Christine: It is not good at all to use different types of statistical methods. There is a jungle of ways in which these things are measured, what makes a unique user and not, what the criteria are for a visit being counted as new and so on.
[...]

Andrea: Okay.

Christine: And it never, I mean you get very different figures [...] then you can't trust the figures. So, it is better to use one system to produce all the figures, and then you can define how these different things are measured, which makes it possible to refer to it, that which Google is using. (From interview with Christine, 2015)

According to Christine, if all libraries were to use Analytics, this would produce more accurate results, which would, in turn, create better, more reliable library statistics on a national level. Here, we can see an example of a technical advancement that could have a positive effect for librarians' work. Eriksson and Zetterlund (2008, p. 17) see that while the influences of technologies may be hard to control, they can provide the librarian with a way to expand and improve their role. In this sense, Christine's hope to increase the use of analytics would improve work efficiency and possibly provide better statistical readings.

In our review of the actions described by the informants, we identify networks in which we see a multitude of actors and their dynamic roles. Trust in these networks can be discussed through different perspectives. Pieters (2010, p. 55-56) explains how when a person chooses to trust a system, the placement of trust involves seeing alternatives and potential risks while still opting to use it. Meanwhile, Giddens (1990, p. 90) maintains that, when interacting with abstract systems, we have no alternative; we simply have to trust it. In both these examples, we can see that alternatives, or the lack thereof, are an intrinsic part of the trust placed in a system. According to Giddens, we have no choice but to trust, while Pieters observes that trust is not present in situations where we do not have an alternative. It is important to acknowledge that Pieters' (2010) and Giddens' (1990) contentions refer to trust in different contexts. While Pieters speaks of specific technical systems, Giddens' abstract systems can be understood in a different context, often on a global level. Although we take this disparity into consideration, we see how both perspectives can be placed within the same context that is beneficial to our understanding of trust. Our empirical material shows evidence of a lack of alternatives to Google and thereby an enforced placement of trust, and in some cases we see an active choice to place trust in the system.

Understanding Google

Many of the informants reflect on how people may find Google hard to fully grasp. John, for example, states "I believe that people tend to think of Google Search when talking about Google, and that they don't think of their other services, such as Android." Both Beth and Adam express a similar notion, saying that people do not generally know what Google consists of and which of its services they are actually using. Emma agrees, remarking: "since YouTube have kept their trademark, this might mean that people are unaware of the fact that Google is behind it." However, John acknowledges that the user's level of knowledge may, in fact, also be the opposite. When asked about his colleagues' knowledge compared to that of the library users:

I would say that it varies. In some cases I'm sure that the library users know more [than the librarians], but that also depends on the individual library user. So it's difficult to respond to, but there are surely times when the library users know more than the librarians. (From interview with John, 2015)

John observes that knowledge on Google can vary between people and that this may not be related to their profession. He goes on to speculate as to whether degrees of

knowledge are related to levels of personal interest, highlighting the fact that Google may be more or less transparent to different people.

In our discussion on trustworthiness in the chapter on previous research, we present the idea that trustworthiness is connected to the level of transparency of a system. Giddens (1990, p. 33) makes this connection in his argument, stating that when there is complete insight into a system, trust is not a required factor. Moreover, this idea resurfaces in Simon's (2010) research when she discusses how the level of transparency affects the level of trustworthiness of the system. She argues that the level of transparency is connected to the individual's particular degree of knowledge; the more transparent a system is, the more trustworthy it is. The informants express a feeling of how Google can be difficult to decipher and comprehend in its entirety, both with regards to other librarians and library users. Following Giddens' and Simon's ideas on how trust is affected in relation to the level of knowledge the user has when interacting with a system, we see that notions of Google's trustworthiness can vary.

Several informants stress the importance of addressing the ways in which Google is not transparent to those who use it. Emma declares that she sees a need for more frequent and more in-depth dialogue on the effects of Google's architecture. She states: "it is part of a library's services to know what it is that we're using and how it works." Emma feels that it is the librarian's responsibility to talk more about how Google generates its profits, and the pros and cons of using the company's services. She uses the term "consumer information" as she envisions what information the library should provide:

I think we could do a lot if you simply think of consumer information. How do these services work? These different digital services? Google first and foremost, but also other [services] that we use a lot. I mean, more basic awareness about who the provider is and how they make their money, which is not unimportant. (From interview with Emma, 2015)

Emma's observations concerning the obligations of the librarian represent an ongoing discussion within the academic and the professional field. The librarian's role as a guide in the digital environment is highly topical in current research (see Sundin 2012; Widén 2014; Carlsson 2013). Furthermore, the idea that everyone should have a basic skill set for accessing and evaluating information under the conditions set by digital developments is now highlighted on an international level (UNESCO) under the term MIL. Limberg and Alexandersson (2009, p. 3260) emphasises the importance of the librarian working pedagogically with guiding library users in information flows. Additionally, Rivano Eckerdal and Sundin (2014) discuss the complexities of accessing and interpreting online information, particularly in reference to Google, and point to how librarians working with MIL can mediate digital skill sets to the library users.

Emma's reasoning on what the librarian's duties should entail also concerns the librarian's own level of knowledge on Google. When Emma states that she thinks that librarians should work with "consumer information" on Google, we recognise Wilson's (1983 pp.179-181) idea of the librarian functioning as an authority on authorities. Wilson identifies such an authority as someone who can be relied upon to

direct others to other trustworthy authorities. In his reasoning, the librarian may be particularly well suited to having this responsibility, since they tend to have certain expertise, working with information every day. Emma's statement reflects an idea that the librarian has a responsibility to educate, which recalls Simon's (2010, p. 354) argument on the 'responsible knower'. According to Simon, a responsible knower understands the risks involved when placing trust in knowledge provided by others. Following Wilson's and Simon's ideas, we can understand Emma's educatory ambitions as an example of how librarians can function as authorities on authorities, working to empower the public's information awareness. Based on Simon's understanding of what makes a system trustworthy, librarians working as guides could arguably make Google more transparent for the library users, and thereby more trustworthy.

John notes that it is important to highlight the complexity of Google when discussing information retrieval with library users. He motivates why he is keen to talk about Google in formal teaching sessions because "it is what people use and what they encounter." John sees a need to talk about Google from a critical point of view, for example, he states:

I think you should increase the awareness that we give to receive. And what is it that we give? Not because it's dangerous, because I think it's problematical if you [...] get paranoid about it. [...] But the fact that you're aware of what you're doing. What a transaction actually looks like. (From interview with John, 2015)

John thinks that it is important to have an understanding of what is involved in the transaction between Google and Google's users. Furthermore, he goes on to remark that it is important that people understand what the filter bubble entails, and that each individual gets tailored search results, because: "it is important that they understand that they get... that the results they get are their own." Adam calls for a strategic approach to education on Google at school, which, in his opinion, is lacking today. He states that some of the teachers and students at his school "fly under the radar", meaning that they do not receive teaching sessions on Search or search retrieval, while other classes with more engaged teachers receive ongoing support in these matters, and thus gain more skills in searching for information.

One factor that complicates our ability to understand how Google works centres on its personalisation schemes. Isaac and John both highlight the fact that it is difficult to understand precisely how Google's algorithms work, and why in Search, for example, the user gets certain search results. In a discussion about the transparency of Google, John reflects:

Well, I mean, they have their search algorithm of which no one knows the full details. For example, I think it includes 200 different factors. No, the search algorithm is one thing and then there are these markers it gathers from the users... they are the two things that together create a search results page. But no one knows how these two things are connected and what parts of your search results it collects. So you could say that they are probably not, or rather, obviously not transparent with this. (From interview with John, 2015)

The concept of the filter bubble as introduced by Pariser (2011), limits a user's access to information by tailoring the search results and thereby narrowing their worldview.

The filter bubble is a recurring topic in most interviews, and the informants talk about it, either in reference to their own activities or in teaching situations at work. When using Google themselves, many informants state that they notice that their search results are personalised, for example, in connection to their geographic location or their interests. Several informants also use the example of adverts when speaking of personalisation in Google, and express a sense of irritation over the fact that the adverts are based on their previous searches. They all show an awareness that other effects of personalisation have greater impact on the users and society. The informants' views on personalisation reflect both positive and negative sentiments. Beth remarks that personalisation facilitates her activities both privately and professionally, stating:

I'm fully aware of [...] the filter bubble and all that, and that they know what we do, naturally. I notice this in the adverts I get and so on, which is not very nice, with that I can agree. But, at the same time it makes things easier, both privately and professionally to such an degree that I use it quite a lot. (From interview with Beth, 2015)

Danielle expresses a similar notion when referring to geographical pinpointing (a feature of personalisation):

Most of the time it's me as a private person who wants to find something, and then I don't see any drawbacks with the fact that the search engine knows where I am. I think that... personally I think that it gives me a better search experience. Most of the time you want to find something that is close by. (From interview with Danielle, 2015)

Concerns regarding personalisation are raised in relation to the general users' awareness of the phenomenon. The informants discuss the importance of educating the public on the implications of the filter bubble. Emma describes how, in her teaching sessions, she raises the meaning of the filter bubble and its implications.

I can also feel that it is what is new, popular and trendy that is displayed at the top of the search results in Google. And this makes for a one-sided view of the world in some ways. That which is different and unusual is so far down the list that you will never find it, since people tend to not go beyond the first page. It's like the filter bubbles, that you get your worldview confirmed [...] and this is definitely a democratic problem, which we can't do much about. But we can at least be aware of it and make sure that as many as possible become aware. (From interview with Emma, 2015)

The ambition to raise awareness of Google also applies to those within the profession. Several informants speak of how their colleagues seek a greater understanding of Google. In the interviews, there are examples of existing in-house training sessions on a practical level, using Google's services as work tools. John states that his colleagues have requested such a session:

We announced that we would hold a seminar on this [Google], open to researchers and the general public. Then, opinions were raised that this could perhaps be needed in-house because; 'We don't feel very confident, we could do with knowing a bit more'. So then we decided to go ahead and do that too. So simply put, I guess there is a need... in-house training. (From interview with John, 2015)

In John's statement we can see how librarians themselves feel that their knowledge on the intricacies of Google is lacking. Emma believes that many librarians feel hesitant to speak with authority on these matters, since they themselves feel uninformed. Commenting on the idea that the librarian should work as a guide, she says: "I think that we as staff still feel a bit unsure about taking on that role. So we could probably do with some further training and backup." As these statements reflect, the lack of confidence in working with technology is discussed in research on trust. Kiran and Verbeek (2010, p. 411) point to the need for a person to feel confident in their own abilities to handle technology, thus trusting themselves to use it. From this perspective, trust in using Google can be traced to a person's level of confidence, which is, in turn, based on their individual abilities. In order to assist librarians nationwide, by keeping them up-to-date, Emma calls for further in-house training and national collaborative projects. She notes that such a venture could be particularly beneficial to those who work in small libraries because:

A small library cannot cope with this, because so much happens and it happens fast [...] And you're always busy with the everyday schedule, keeping the library open, and attending to other duties, so you don't have the time. (From interview with Emma, 2015)

In her example, Emma shows how librarians' insufficient knowledge can sometimes be explained by a lack of time and structured in-house training efforts. The informants show a general feeling of how Google can be hard to grasp. In many cases, we see that both the informant's colleagues and library users wish to learn more, and that the informants think that it is important to mediate such knowledge. These notions recall Widén and Kronqvist-Berg's (2014, p. 3) observation that librarians can lack both time and confidence to incorporate new technologies in their work, which underscores the importance of structured in-house training.

The informants give many examples of how they personally work pedagogically with mediating information on Google. Two ways in which they work to educate library users on Google are through the reference interview, and through organised teaching sessions. Sometimes Google is simply used as a way to enter into a discussion about information search with the library user, which is the case for Beth. She notes that she sometimes asks the students where they search for information today, and when they reply 'Google' she guides them to other sources that the library provides. Danielle states that she has talked about Google during teaching sessions, as part of a greater discussion about searching for information. There are also examples of a less organised approach, such as in Isaac's case. He remarks that during a session with postgraduate students, he will discuss Scholar "if the students specifically request it", but that it is not a planned event. We can see how other actors adapt their actions to Google's services because of their presence in the networks. In the examples above, we see how the informants spontaneously modify their actions to some degree, because of Google's influential role in the networks. Additionally, some of the informants' actions are consistently shaped by Google's presence.

In contrast to the previous examples of impromptu teaching opportunities on Google, John, Helene and Gina run planned sessions focused on different aspects of Google. Helene and Gina have structured their sessions on information retrieval around

Search. They see Google as the foundation for information retrieval that their users can all relate to, and they use it as a stepping-stone from which they can introduce other library-owned resources. Gina describes how Google can be the right tool in some situations but not in others:

So it is more of a way to move forward. Yes, and to show that we do not think that it is wrong to search using Google. We do it all the time, but there are different situations when one should search using Google, and different situations when one should search using databases. (From interview with Gina, 2015)

For Helene and Gina, Google is used as a helpful pedagogical tool, although it can also be seen as a challenge to the pedagogical process. Isaac discusses the fact that many people feel that Google has made information search easy and reflects on what this means for his profession, stating:

It has made our work a bit more, I don't know, more challenging in a pedagogical sense because we have to explain more about why it's not always so easy, and that you need to put more energy on your searches. (From interview with Isaac, 2015)

The fact that the librarian's pedagogical role is challenged by Google's influence is raised by Rivano Eckerdal and Sundin (2014 p. 147) who discuss the ways in which the librarian's function as a mediator of information retrieval skills is made more important by these new conditions.

The issues raised by the informants on Google's dynamic show an awareness that Google can be hard to grasp for people in general. Based on this information, we argue that Google functions as a black box for these actors. Callon and Law (1997, p. 174) and Latour (1987, p. 131) explain that the concept of a black box means that the inner workings of an entity are hidden from view, and its content need not be understood. Seeing Google and its services as networks, they represent a black box seen as one body, where the inputs and outputs of it are understood, rather than the algorithms that make it up. When defining his term 'explanation-for-confidence', Pieters (2010, p. 56-57) describes how users may understand how a system works externally, making them feel confident using it. Pieters goes on to state that systems that are 'explained-for-confidence' can be seen as black boxes. In his contrasting term, 'explanation-for-trust', Pieters clarifies how this involves the users understanding the inner workings of a system, and so may be able to trust it. Similar notions are echoed in Simon's (2010) argument that a system's trustworthiness is directly linked to its level of transparency; if a system is transparent it is also generally seen as trustworthy. Based on our informants' reflections, we can see how Google may be something that its users generally do not trust, but still have the confidence to use.

Our informants' statements reveal how it may be difficult to fully comprehend Google's inner workings for many of its users. When the informants speak of their own knowledge of the system, they display a well-rounded, but by no means complete, understanding of how Google works. We see that our informants tend to question Google's trustworthiness due to their high level of insight, which, in a sense, ought to increase the transparency of Google for them. Here, we deviate from Simon's argument that increased transparency leads to the increased trustworthiness

of a system. The hidden functions of Google and their effects, such as the filter bubble, which all the informants describe an awareness of, is instead connected to feelings of suspicion. Therefore we argue that the fact that Google is lacking in its transparency, in actuality makes it *less* trustworthy for our informants. However, following Giddens' (1990, p. 33) ideas that the lack of transparency requires trust, we can argue that the lack of insight in Google increases the need for the informants' trust, since they do not have full insight into its system. By examining perceptions of Google's transparency and its trustworthiness, the identification of trust can be performed in different ways, and different conclusions can be drawn depending on one's perspective.

The Risks of Using Google

The informants express a general scepticism towards Google, and identify risks with the way that it works. The informants are aware that using Google is not without its problems, and issues concerning privacy, free access to information, and Google as a profit-driven company are highlighted. A recurring issue that they discuss is the possible negative impact of the filter bubble, echoing the notion expressed by Pariser (2011, p. 88) that our worldview is narrowed due to the effects of personalisation. For example, Pariser (2011, p. 91) notes how these risks can involve a general reduction of curiosity and creativity when serendipity is removed. As we have seen in our examination of Google, personalisation is a key feature in its design. Lewandowski (2012, p. 3-4) explains that personalisation involves tailoring search results on the individual user's previous search behaviour. John and Emma use exactly the same words when discussing the risk that the filter bubble leads to a constant "confirmation of one's own worldview." Isaac sees risks in his own use of Search, stating that he thinks that it easy to be influenced by Google's algorithms and its suggested search terms, but that he tries not to be affected by them.

The use of Google becomes automatic. And you are conscious of the fact that the search results are affected by which sites link to which, so really the big sites becomes even bigger through Google, I think. I also think that you're affected... I try not to be affected, but when you start to write [in the search box] Google deliver suggestions on what to search for. (From interview with Isaac, 2015)

In a discussion on the influence of Google's standardisation of information on society as a whole, Frank sees risks with Google's lack of competitors. Frank contemplates how a monopoly may work to reduce people's autonomy and critical reflection, remarking:

And then we could reach the point where we live in a society of disinformation, quite a dystopian idea. But, as I mentioned before, search results are already bought in order to be placed high on the list, and advertising spaces are purchased, and so on. So democracy could be something that you buy online. (From interview with Frank, 2015)

Here, then, we see examples of how the informants recognise risk, both with regards to their own activities as well as those of other actors. Beth's reflection on the problems involved with the majority using Google, provides an example of a recurring notion: "the fact that everyone puts their questions to one company is

completely absurd.” In these quotes, Beth and Frank express a notion that the filter bubble does not only pose a problem to the individual, but also to society as a whole. The informants’ apprehension about how the local and the global are intertwined in this social phenomenon, mirrors Giddens’ reasoning on the risk environment. Giddens (1991, p. 136) sees how the risks that affect the individual also affect society as a whole when an abstract system expands to a global level.

When reviewing trust in the light of Giddens (1990, p. 35), we can see that there is always an element of risk in any situation that involves trust. This sentiment is also expressed by McKnight et al. (2011, p. 3-4), who state that trust arises in a situation where a person is made vulnerable by interacting with a system. The authors remark that the trust placed in technology usually involves relying on it to perform a task. However, the risks that the informants point to have other ramifications. We see how, in the case of Google, the element of risk does not apply to the possibility that it might not perform tasks, but instead lies with the way Google performs these tasks, and what this entails. Google’s personalisation schemes thus make the user vulnerable, constantly exposing them to modified information flows. Vaidhyathan (2011) sees how Google’s design affects the way we act and the way we think. By suppressing access to some information sources, as Pariser (2011, p. 104) argues, the opportunity to find material that the user is not specifically looking for is removed. Hence, the user is not necessarily aware of how the filter bubble enforces convictions and beliefs.

Another risk that the informants identify in the use of Google is related to how the user’s activities are monitored. Adam wonders how Google uses the data that they gather on their users, and points to the fact that the company does not openly declare this information:

It’s scary when all [data] is collected and logged, not only for advertising purposes. At the same time, I like that you can predict everything from the flu, to purchases, to what’s trendy, which can all be predicted thanks to the search algorithms. I can like that, in a futuristic way. (From interview with Adam, 2015)

Some informants discuss Google’s monitoring of its users, and compare it to state monitoring. Helene reflects: “they probably know more about me than I tend to believe, I’m sure. But it is everywhere, the government, whatever that is, they know a lot about you as well.” Frank speaks of Google’s collaboration with governmental intelligence services and is critical towards it. Christine’s opinions on the matter are divided. She feels that some governmental surveillance can be positive for crime prevention: “for instance, we’ve seen that, I mean now with recent terrorist attacks and that, which have been possible to stop.” While she remarks that she feels uncomfortable with companies tracking one’s movements she does not feel this type of monitoring affects her personally, saying that she has nothing to hide:

I feel divided. In some ways I think it’s a good thing that we get more information tailored for us. At the same time, it feels a bit scary that big companies, like Google or Facebook, can check what we do outside of their own websites. I mean, like this discussion that they can read your text messages. It’s important that there is some sort of personal integrity. However, I can feel that since I don’t have anything to hide it’s only important to a certain extent. (From interview with Christine, 2015)

The monitoring that the informants highlight is topical in research on Google. Snickars (2014, p. 281) comments on how Google profits on the data generated by its users, a trade also discussed by others. For example, Vaidhyanathan (2011, p. 90) remarks upon this exchange where user data is traded for access to Google's services. Gina speaks of the effects on monitoring from a general point of view, stating that, in order to use the Internet today, one must accept being monitored. When asked about monitoring, Danielle describes how she sees her use of Google's services, and the exchange that it involves:

Liv: But do you not have a problem with Google having this information about you?

Danielle: No, I mean someone will have it... I don't know. I mean it's not that I don't care, but you always, regardless of whether you are a professional or a private person, make a risk assessment, that is risk versus reward. In this case, I guess the reward is greater than the estimated risk. (From interview with Danielle, 2015)

As we can see, Danielle identifies an element of risk in the exchange of information between Google and herself as a Google user; in her case, she feels that the benefits outweigh the risks. John expresses a similar sentiment, stating that, for him, it is a conscious choice to use Google, but that he is very much aware that there are problems with this. He remarks: "one way or another I sell my information to Google in everything I do, and I realise that it is the price I pay for this "free service" [air quotation marks]. So it is simply a form of exchange." We can see that the informants are aware of the trade and the possible risks that go with it. However, some of them accept this, since they feel that the benefits are greater than the costs. In these cases, we can see how the informants' interests are aligned, thereby translated, with those of Google. Furthermore, in these cases, we see how the translations involve risks. Giddens' lines on trust in abstract systems, which involve a kind of bargaining, is reflected in the embedded trade between Google and its users. Giddens (1990, p. 90) argues that by interacting and trusting these systems, which we cannot avoid, we can have a comfortable existence in our modern society, but that this always comes with a cost.

Another risk that the informants raise in connection to the use of Google, deals with the ways in which Google censors information. For example, Emma and John talk about how Google censors information here in Sweden, and in other countries, to varying degrees. Emma notes: "there have been those kind of discussions when Google has agreed to censorship in certain countries and so on, so there is power to do anything really." Google's censorship is detailed by Segev (2010, p. 68) who explains that there are different reasons behind Google's censorship. One concerns the way that, as some websites are selected to appear in the search results, others are deselected. Another is the way that Google accommodates the regime of a country, by adapting the search results in the local Search domain. John recounts how he has noticed the ways in which the results using the same keyword can vary in different countries' domains, and speculates on the reasons behind this. Reasoning on whether Google is democratic or not, he states:

So there is a form of censorship. But then I don't know how democracy... what a search result says about democracy. Is it that everyone gets the same information, or

is that we get the information that the majority wants? I don't know what the concept of democracy really has to do with a search result really. But if they are impartial, objective? No, definitely not. It is a company, you mustn't forget that.
(From interview with John, 2015)

Furthermore, John speaks of how he believes that people might imagine Google as a kind of altruistic, good, and neutral service. Beth also considers these aspects of Search, and the fact that it is not a source of information but a search engine and a private company, a distinction that she believes many people are not aware of:

Google is a search engine, it's not a source in itself... Google searches in other sources, which is a distinction that I'm not sure that everyone knows what it is. And above all, they don't know that it is a big company, since they have been smart enough to not have adverts on their front page, instead they look completely neutral. That might be the most insidious move of all. (From interview with Beth, 2015)

Our previous discussion on the question of search neutrality reveals opinions on whether it is relevant for Google to strive towards neutrality. Manne and Wright (2012) highlight the fact that Google's organisation carries with it a natural bias, since the ranking system always favours certain web pages. Additionally, Grimmelman (2011, p. 446) argues that the question of a search engine's neutrality is pointless, claiming that it is not only the algorithms that make the result list biased, but that bias also lies with the web page providers and the search engine users. Based on these discussions on search neutrality, we can see that the issue does not lie with whether Google's search results are biased, but with how it may be generally perceived as neutral.

The risks that the informants identify can be understood to involve people having expectations on Google not misusing their personal data, as well as supplying them with the information that they need. In a discussion on trust, Pieters (2011, p. 55) comments on how people have expectations on other people and surrounding systems in order to interact with them. The informants express a general sentiment of being satisfied with Google's services, and describe it as being seamless, smooth and flexible. For example, John remarks: "they are extremely useful. I would say they are seamless, and that is just the way you want it." Similarly, Adam describes his personal experience using Search: "Google is very user-friendly and fast and I don't think I have been disappointed so far, also because I know where to search when I need something else." Several of the informants voice the opinion that Google performs the tasks that they expect it to. For example, Christine says: "I feel that I find everything that I need to find" and Isaac remarks that "you don't look for too long... don't need to look for too long at the results page, since you usually find [what you're looking for] pretty quickly." These examples of the informants' expectations being met reveal elements of their trust in Search. Moreover, John takes his expectations one step further, when discussing searching for a specific item he assumes that "if I can't google it, then I don't think it exists."

In these examples, the informants' satisfaction with Google's performance reveals ways in which their expectations are met. Earle (2009, p. 786) declares that we have inherent expectations in systems to behave in a certain way, and that these expectations are necessary for us to place trust in them. When addressing trust in

technology, Xu et al. (2014, p. 1499) find that the attributes of the system, such as efficiency and reliability, are important if a system is to be deemed trustworthy. McKnight et al. (2011, p. 2-3) have a similar standpoint and determine that, when people place trust in a system, they trust it to perform a task thereby placing expectations on it. In our empirical material, we see examples of the reasoning of McKnight et al. (2011, p. 2-3) on the importance of certain attributes of a system and the system's ability to perform a task. As seen above, the attributes that the informants use to describe Google's services correspond with the terms McKnight et al. (2011) identify. Following Earle's (2009) argument, the fact that the informants have expectations on Google is a necessity if they are to trust it.

The informants' expectations of Google may have further implications. By having expectations of a system, we may come to see it as an authority. According to Wilson (1983, p. 15), seeing someone as a cognitive authority involves assessing their credibility and relying on them for information. In continuation of Wilson's ideas, Shirky (2009, n.p.) introduces the concept of algorithmic authority. As previously presented, Shirky states that one of the characteristics of algorithmic authority is a system's ability to present relevant results, which leads to the user having trust in said system. Shirky's ideas on this matter are fortified in Kammerer and Gerjets' (2014, p. 184) research conclusions. In their research, which deals with students' search behaviour, the authors see that web users tend to rely on the position or ranking of the search result in the results page. The satisfaction that the informants express with Google's services denotes an element of reliance similar to Kammerer and Gerjets' findings on search behaviour. If we can see that expectations of Google are met, users are triggered to trust Google, and thus, their expectations form an important element of understanding trust in Google.

Conclusion

In this final chapter, we revisit our research questions, summarising our answers based on the analysis carried out in the previous chapter. We structure this chapter around our research questions and present answers to them based on our theoretical framework. We go on to make some final remarks, placing our study in a wider context, and raising related issues beyond the immediate matters treated in this study. Finally, we discuss topics that have emerged during the work process that we find compelling subjects for further research.

Research questions revisited

With this study, it is our ambition to gain knowledge about how librarians interact with Google, and to generate an understanding of trust in this relationship. In order to achieve this goal, we turn to our research questions and describe the librarians' networks, identify prominent roles within them, as well as presenting ways in which trust is a part of this context.

What actions are prominent in the librarians' networks?

The networks include a multitude of actions to which we may trace any number of actors. To answer this question, we choose to focus on a few central actors and their actions. Several actions are connected to Search and are performed by several different actors. As the librarians perform searches, both for their own purposes and in a reference interview, several other actions are also performed by nonhuman actors. These may include actions performed by the hardware used by the librarian as well as the algorithms delivering the search results. The outcome may lead to the librarian clicking on a link to a website, for example, Wikipedia presenting an article on the requested subject. As librarians use Google's services, nonhuman actors interact in several ways. Apart from the fact that computer hardware is necessary to access Google, Google's services communicate with each other. When a librarian, for instance, uses Analytics, Chrome is necessary for optimal usage. Another identified action, occurs when librarians have one Google account, Google tends to route them between the different services. In addition, Android hardware contains Google software that gathers and reports data on the user, providing information for other Google services. When librarians use Google's services, data on their activities is gathered, which Google uses to personalise the user experience. The information that the librarian receives is partly based on data that they themselves have previously provided.

The librarians' actions can be understood as being formed in networks and by the actions that constitute them. Due to the prominence of Google actors in the networks, we see how several actions can be traced to Google's services. For instance, librarians hold teaching sessions on using and understanding Google, both for library users (in groups or individually) and for their colleagues. When planning and conducting their teaching sessions on information retrieval, librarians may use Google as a starting point to their activities. This strategy can be explained by the popularity of Search in particular, and the importance of working to enlighten the public on matters concerning Google. Another service keenly used by human actors is Drive, which is a part of many teachers' and students' activities at school. Many librarians also interact through the medium, working collaboratively with external colleagues, as well as sharing documents with immediate colleagues.

What roles can be determined within these networks?

The actors' roles in the networks may differ depending on which actor they are interacting with. When human actors use Search to find the answer to a question, they refer to Search as an authority that can provide them with the information they need. In this sense, Search functions as an algorithmic authority, a role that it takes on only in interaction with other actors (see Shirky 2009; Wilson 1983). This arrangement also signifies a relationship of dependence, meaning that users are crucial for Google to function. Roles of authority are also assigned to the librarians in networks, sometimes functioning as authorities on algorithmic authorities, and sometimes striving to take on this role. For library users, then, the librarian may be someone they can refer to with their questions on how to use and better understand Google.

The aspects of interdependence between Google and its users suggest translation, and thus Google's role in the network can at times be seen to have the characteristics of an obligatory passage point. When Google succeeds in providing the users with what they want, they keep users within their structures showing an alignment of the interests of Google and its users. To different degrees, human actors find Google's role in the networks difficult to comprehend. Google functions as a black box, with different levels of obscurity depending on the actor's insight.

Research shows that there are many ways in which the librarian's role is shaped by new technologies, and how librarianship accordingly takes on new characteristics (see Eriksson & Zetterlund 2008; Sundin 2012). Our empirical analysis reveals similar tendencies. Librarians adapt to Google, forming an understanding of the librarians' roles in the networks. The librarians either work, or strive to work, to mediate a critical view of Google, and act as a guide in ways of using its services.

How is trust a part of the working relationship between librarians and Google?

A relationship of trust between a person and technology depends on a variety of factors, and can be understood differently depending on how these factors are interpreted. One such factor is concerned with having alternatives, an issue highlighted by the librarians. Giddens (1991, p. 82) addresses the matter of alternatives in relation to trust. Following his reasoning, perceiving Google as an abstract system, suggests a situation where the person has no choice but to place trust in it. However, viewing Google's services as tools implies that they each represent one

technology among many, which people can choose to use, and thereby place trust in them.

Trustworthiness is an attribute of a system, affected by its level of transparency. The conditions of trust are thus dependent on the level of insight a person has in Google. If, as Giddens (1990, p. 33) suggests, a transparent system does not require trust, then the level of insight into a system can be seen to be an important condition. In the working relationship between librarians and Google, how librarians understand Google affects their trust. Interestingly, while the librarians often display a high level of knowledge of Google's systems, their trust does not increase accordingly. Rather, they express reservations that in some ways contrast with Giddens' argument, since their increased insight does not involve higher levels of trust.

Giddens' (1990) reasoning that there are always elements of risk in situations involving trust indicates that the risks with using Google, as identified by the librarians, suggest a presence of trust. The risks point to different problematic factors, for both the individual and for society as a whole. They all concern the way in which Google performs its tasks, as opposed to whether or not they are fulfilled. Also, the librarians discuss the risks versus the rewards in their use of Google's services. Their statements demonstrate that they have expectations on Google, both with regards to positive and negative outcomes. Expectations can be seen as a necessary condition for the placement of trust, and the librarians' expectations form an integral part of their relationship with Google.

Final remarks

Google's services can be understood as a practical piece of technology, much like any other, that operates close to the users. Interpreting Google in this manner allows us to examine it and the trust users may have in it, in a way similar to previous research on trust in technology. When the informants use Google to perform a search or write in a document, these examples offer an understanding of Google's services as types of appliances used to perform a certain task, providing the user with a particular service. However, our point of departure is that Google is a complex phenomenon, in many ways unprecedented compared to other technologies previously examined in relation to trust. Therefore, we also address the ways in which Google can be understood to have a different character altogether. Instead of being a "hands on" technology, we see it as one that has the structure of a social system, and where the consequences of using it concerns society as a whole.

The working relationship between Google and librarians is shaped by many actions that are defined by the actors' shifting roles. Due to the dynamic interactions, the networks fluctuate and cannot be precisely pinpointed in time and space. Determining where the specific boundaries to a particular context lie is not the purpose of this study. The focus lies instead with the relationship between those actors that we identify as significant. Using ANT, we are able to focus on the interactive elements of social activity, as opposed to other social factors used to explain the reasons behind such elements. In using ANT to study the context in which both librarians and Google are actors, we can see that Google is a regular occurrence in the librarians' everyday

work activities. The material reveals many ways in which Google shapes librarians' activities, and ways in which the librarians reflect upon this influence.

The role of the librarian is manifold and involves many different responsibilities, a fact that is also evident in the context of this study. Their working relationship involves not only their own individual interactions with Google's services, but also the ways in which library users relate to them. Therefore, librarians have a unique position whereby they work to inform others and maintain a critical understanding of a service that they themselves use. The librarians are aware of the library users' understanding of Google and adapt accordingly. This awareness means that librarians strive to expand their role to meet the demands of a changing digital environment. When successfully mediating knowledge on Google, the librarian may be seen as taking on an authoritative role as someone to whom the library user can come for guidance. This way of working forms an important aspect of the current and future roles of the librarian. Due to the dominance and complexity of Google in our society, the librarian's function as an authority to be relied on for a wider, more nuanced access to information is vital. Our empirical analysis reveals an emphasis on the importance of working with digital literacy, of which we see parallel trends in current research and international library work.

The empirical material also shows another side to how librarians perceive their performance in relation to Google. Librarians may have a sense of their knowledge being inadequate with regards to Google, meaning that they are uncertain as to how to relate to Google's services, particularly the way in which they mediate this knowledge to others. Such tendencies lead to occasions where the library user cannot turn to the librarian with their Google related queries, thereby questioning the librarian's role of authority. In such a situation, one may call attention to whether librarians' democratic responsibilities are fulfilled. We question how the librarian is to satisfactorily perform the services required to promote digital literacy without sufficient knowledge of Google. Moreover, in many cases, the informants show how their interests in digital issues, particularly with regards to Google, arise from a personal interest. While we see the positive outcomes of their engagement, we argue that in order to reach a tenable solution to improving digital literacy and supporting democratic ideals, a national strategy is necessary, a sentiment that is echoed in several of the interviews.

Google is another actor with authority in the networks we study: an authority vis-à-vis both librarians and library users. For them, Google is a source of reliable information that they can turn to in their search for answers. In addition, many human actors lack insight into the processes by which Google presents information, placing the Google user on unequal terms with the system. The user's lack of insight, combined with Google's extensive monitoring practices, suggests that Google holds a position of power over information flows. This power structure brings with it a threat to free and unsupervised movement online, and many of the risks involved are raised by the informants. Compared to other research that addresses the risks of using a technology whose risk lies with its failure to perform a task, our study reveals a different problem. A central aspect of the identified risks is the way in which Google conducts its services, meaning that the problem lies with the practical usage of them,

rather than the possibility of tasks unfulfilled. Such use can, for example, be problematic due to the effects of monitoring and personalisation.

The level of insight that users have in Google affects the degree to which the system is perceived as trustworthy, and can be a factor in the user's autonomy in the placement of trust. Referring to Giddens' ideas, and if we view Google as an abstract system, the effects related to the use of Google bear relevance to society as a whole. Thus, the placement of trust in Google cannot be considered voluntary in the same way that it could regarding Google's services as specific technologies. We argue that there are benefits to viewing Google as an abstract system, because we see that previous ways of examining and identifying trust in technology do not prove sufficient in this case. Giustiniano and Bolici (2012, p. 195) explain how the use of ANT can assist in gaining a more detailed understanding of trust in technology. While we agree with the authors' claim, and we ourselves use ANT as a tool to achieve this goal, we see the need to take on different perspectives since we examine a large scale and unparalleled system.

It is evident throughout the study that many actors are part of the interplay and affect the working relationship between librarians and Google. As a consequence, it is difficult to decipher the dynamic from the single perspective of the librarian. Therefore, it is valuable to adopt a holistic approach in examining this relationship. While we selected a method that involved interviewing only librarians, we also strived to direct our attention to other actors in the discussions. The semi-structured format of the interview assisted us in gaining a wide-ranging view of the networks. It has been beneficial to the study that the informants were informed on issues regarding Google, and that their expertise made an imprint on the outcome. Had we chosen librarians with a different skill set, the material would very likely have been of a different character. A group of informants with more diverse skill sets might have generated more varied results, providing a broader understanding of the ways in which librarians work with Google. Our choice to interview experts on the subject of study provides immediate insight to matters at hand, since they hold key knowledge, thereby increasing the efficiency of our information production process (see Bogner, Littig & Menz 2009, p. 2; Meuser & Nagel 2009, p. 31). Our focus on trust in the relationship between librarians and Google has highlighted many topical and critical issues that deserve attention, in the public discourse, and in further LIS research.

To conclude, in our endeavour to combine ideas from two different theoretical foundations, we found that this choice brought with it certain advantages but it also proved to have drawbacks. There are many ways in which the perspectives are not compatible, meaning that our analysis can be perceived to contain incommensurable elements, making it to some extent non-cohesive. However, it has not been our intention to unify ANT and Giddens' ideas on trust. Rather, we see them as complementary, providing us with diverse viewpoints from which we can examine the relationship between librarians and Google. Since Google is a complex phenomenon, making our relationship with it intricate and hard to encapsulate, we see the benefits of approaching these issues from different angles, thus highlighting the complexities, rather than attempting to simplify them. In our analysis, we strived to ensure that our object of study was viewed through both of the theoretical approaches in a critical and productive way. Our efforts complicated our analytical process, but

also resulted in a multi-faceted review of the material. Additionally, since ANT also functions as a method, it has permeated our work process, whereas the ideas of Giddens have allowed us to reflect on how trust can be understood. We find the end results of this combined approach to be rewarding, despite the problems it has incurred. In referring to these theoretical perspectives, we carry forward new ideas that we hope will inspire future research.

Issues not raised in this study, that we feel are worthy of examination, involve the power structures that exist in any relationship with Google. We see tendencies towards imbalance between Google and its users, which could be beneficial to view through analyses of power. Another issue that could be addressed is that of the librarians' knowledge on Google and how this knowledge is created. In our study we see that there is no set structure for how librarians are to mediate their knowledge on Google to the library users, and even less so for how they are to gain the knowledge they need themselves. Therefore, it would be fruitful to investigate what forms of collaborative work can exist on a local or a national level. Finally, we see a need for a study on Google's role in those organisation structures that have embraced Google as their internal communication system. We are curious as to what the consequences may be when a workplace, such as a school, adopts and relies on a system of which they lack both insight into its internal workings, and control of its development.

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Attachment 1: Interview Guide

Inledande

Beskriv bakgrund till intervjun och fråga om informanter undrar något innan vi börjar. Etablera ett "muntligt kontrakt" om vad vi ska göra.

- Kan du beskriva dina huvudsakliga arbetsuppgifter?
- Vad det innebär det för dig att vara informationspecialist?

Google

- Kan du beskriva i vilken utsträckning du använder du Googletjänster på jobbet? (vilka? privat?)
- När använde du Google senast på jobbet? (Vad gjorde du då? Hur resonerade du då?)
- Vad tycker du om Googles tjänster? (hjälper de?)
- Har du märkt någon förändring över tid, i hur du och andra använder Google? Prata om till exempel:
 - LUB-search, googleanpassning (googlifiering)
 - Hur har Google påverkat dina arbetsuppgifter? (vad tycker du om det?)
 - Hur tror du att andra har påverkats av förändringen som skett?
- Hur ser du på din roll som bibliotekarie/informationsspecialist i förhållande till Google? (Du sa tidigare att...)
- Om man tänker ur ett demokratiperspektiv, hur tycker du att Google passar in där? (Kan du komma på fler exempel?) (Ser du några problem med att Google är ett företag?)
- (Påverkas dina handlingar på jobbet av de här tankarna kring Google och demokrati?)
- Ser du alternativ till Google? (Varför använder du Google?) Relatera gärna till arbetsplatsen och i allmänhet.
- Litar du på Google? (varför/varför inte?)
- Tror du att andra bibliotekarier litar på Google?
- Påverkas dina handlingar (på jobbet) av hur du litar på Google?
- Har det hänt att det har förts diskussioner om Google på din arbetsplats, kollegor emellan och/eller med låntagare? (Ge gärna exempel på tidigare nämnda problem eller tankar.)
- (Hur har de diskussionerna sett ut?)
- Ser du att det finns några risker med att använda Google?

- Hur tror du att din yrkesroll i förhållandet till Google kommer utvecklas? - Ser du några konsekvenser?
- Vad har Google för konsekvenser på samhället i stort?
- Vi har inga fler frågor. Har du något att ta upp innan vi avslutar?

Attachment 2: Pre-Interview Information

Vi skriver vår uppsats i biblioteks-och informationsvetenskap på ABM-programmet vid Lunds universitet. Uppsatsen skrivs vårterminen 2015, och planeras vara färdig i juni månad. Vår handledare är Olof Sundin, professor i biblioteks-och informationsvetenskap.

Uppsatsen handlar om Google och hur man kan förstå den problematik som användningen av Google medför. Genom våra intervjuer vill vi undersöka hur informationsspecialister relaterar till Google utifrån sin yrkesroll. Vi är intresserade av hur de som dagligen arbetar med informationshantering och är kunniga inom digitala frågor förhåller sig till Google, både i det dagliga arbetet men också i ett större perspektiv.

Vi kommer att spela in och transkribera intervjun. Vid intresse kan vi skicka det transkriberade materialet till dig. Vi kommer att sträva efter att behandla dig som informant konfidentiellt och i uppsatsen kommer vi att i största möjliga mån formulera oss så att du ej kan identifieras.

Skulle du ha några frågor inför eller efter intervjutillfället, kontakta oss gärna via telefon eller e-post.

Med vänliga hälsningar,
Andrea och Liv

Attachment 3: Division of Work

Since the very beginning, our project has been a thoroughly collaborative effort. The subject area and the research problem in our study sprung from our shared interests, and was shaped by a joint investigative process. Throughout this process, we have strived to allocate the work equally between us. The text has been almost exclusively written together, usually by sitting in the same location, and writing in one shared document. We have both read and discussed all texts that we refer to in the thesis. In addition, we have both been active in planning and conducting the interviews, searching for information and checking that we adhere to the reference guidelines. We have also kept several shared documents that we have used for different purposes; for example, an idea document, a work diary, and notes on research literature. These provided us with a platform for documenting our ideas and our individual understanding of the literature. In some instances, we have divided tasks between us, such as alternating the responsibility for the transcription of the interviews.