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# The elusive search engine: How search engine use is reflected in survey reports

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## Abstract

The overall aim of this article is to contribute to a research-based understanding of the increasing invisibility of web search engines in society and to discussions about the potential impact of this invisibility. It examines how search engine use and online search activities are represented in national and regional reports on internet habits and experience published by public foundations and policy institutes. The elusiveness of search engines is understood through a theoretical perspective from infrastructure theory. National survey reports on internet habits and experience from the United States, UK, and Sweden from 2015 to 2021 are analyzed. The article shows how difficult it is to gain insights into how people search online and the role search engines play in everyday life. The nature of the survey report, which is often used to inform national policy, risks exacerbating the invisibility of search engines: what cannot be measured cannot be discussed at the policy level. This invisibility can lead to insufficient attention being paid to search engines, including their uses and effects, in legislation, in school education, and in the general formation of public knowledge about search engines in society.

## 1 | INTRODUCTION

The overall aim of this article is to contribute to a research-based understanding of the invisibility of web search engines in society and to discussions about possible effects of this elusiveness. To achieve this aim, the article is based on an empirical analysis of national and regional reports on internet habits and experience that have been published by public foundations and policy institutes, to examine how search engine use and online search activities are portrayed. General purpose search engines, such as Google Search and other commercial search engines, are fundamental to society on many different levels, yet, at the same time, their role in daily life is elusive and increasingly invisible. When referring to the *invisibility of search*

*engines*, we include the use of them, and their effects, in, and for society. An example of such invisibility is the way that people use search engines daily without always being aware of it. Search activities are often so deeply embedded in other practices that they go unnoticed (Andersen, 2018; Andersson, 2017; Haider & Sundin, 2019). Commercial search engines form an essential part of the backbone of the open web and are part of many online activities. They constitute an important information infrastructure and their invisibility can thereby be viewed as problematic. There is a curious tension between how search engines are used and perceived in everyday life and how they are understood in much research. On the one hand, search engines are often seen as neutral and objective by users (e.g., Bilić, 2016; Hillis et al., 2013; Pan et al., 2007); on the

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other hand, search engine bias and its effects have been a recurring theme in research, at least since Introna and Nissenbaum's seminal 2000 paper on the politics of search (see also Granka, 2010). There is thus dissonance between the way that people conceptualize search engines in everyday life and the way that search engines actually work, making the questions researchers ask people about search engines pertinent to investigate. In this article we analyze this issue by examining whether and how search engines feature in large-scale, survey-based reports of internet habits and experiences.

A survey is “a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behavior” (Fink, 2003, p. 1). There is a reciprocal relationship between surveys and society. Society provides the conditions for how surveys are formulated, and, at the same time, surveys tell us something about society, and, if used to inform policy decisions or journalism, their results affect societal conditions. Survey reports, along with other tools for compiling statistics, have been a pillar of modernistic approaches to society and societal governance since the early 19th century and forms an important component of the work of public agencies (e.g., Poovey, 1998). Shore and Wright (2015, p. 421) refer to this approach to governance as “Governing by numbers” by which they mean the use of audits, measurements, and rankings within and across countries to promote certain outcomes. Contemporary policy making requires measurements of people's experience, knowledge, behavior, attitudes, and so forth, and as Durand (2016) points out, “survey research has also tended to set in stone the way questions are asked, and this had an impact on society” (p. 57). An example of such measurements is the abundance of surveys carried out annually on peoples' internet habits by research institutes, policy institutes, and foundations. The results of the surveys are communicated in national or regional reports that map the current landscape of media and internet habits and are then picked up by journalists and broadcast in media (e.g., Asher-Schapiro, 2022; BBC News, 2022; Korn, 2022). The reports also provide researchers with current statistics on issues such as internet access and ownership distribution of digital devices (e.g., Yates et al., 2015). There are examples of how these surveys are used in academic research to influence discussions on legislation relating to internet regulations in general, and search engines in particular (Carmi et al., 2020; Daly & Scardamaglia, 2017; Livingstone et al., 2018). The reports paint a picture of both success and failure in relation to the digital area, for example, regarding digital inclusion and exclusion on a national level. In this respect, the reports can be viewed as contributing to a narrative on internet habits and development.

The reports are explicitly produced with the aim of forming a basis for policy decisions. For example, the UK

agency Ofcom states that their UK *Adults' Media use and attitudes report* is “a reference document for industry, stakeholders and the general public” (Ofcom, 2023). A similar aim is stated in the Swedish report, *The Swedes and the internet* (2020, p. 6): “We want to contribute with facts and insights on how the usage of the internet in Sweden develops. We want to provide conditions for the digitalization of the Swedish society and industries to be well founded.” Measuring, recording, classifying and systematically describing the internet usage of a population has implications for the governance of at least that very group of people and of future generations (Durand, 2016). The fact that these surveys provide journalists, researchers, and policymakers with statistics on various themes related to internet use makes them an important object for analysis.

Against this background, the following research questions are the focus of this:

1. In Western internet usage reports, what themes can be identified in relation to online searching and search engines based on the questions posed?
2. What normative assumptions inform the positions search engines are assigned (or not assigned) in these reports and the underlying surveys?
3. How can these themes and related normative assumptions be understood to contribute to the specific position assigned to search engines in the information infrastructure of society at large, and with what possible implications?

These questions are considered by examining what questions about search and search engines are asked (and not asked) in the surveys. In so doing, we ask what kind of knowledge the surveys are trying to elicit and what remains unknown. We have chosen to analyze reports from Sweden, the United Kingdom, and the United States.

## 2 | THEORETICAL PERSPECTIVE AND PREVIOUS RESEARCH

In this article, the elusiveness of search engines is understood through infrastructure theory as proposed by Susan Star and coauthors (Bowker & Star, 1999; Star & Bowker, 2010; Star & Ruhleder, 1996). They suggest that when infrastructures function as they should, they become invisible to the people who use them. In the oft quoted statement of Bowker and Star (1999, p. 33): “The easier they are to use, the harder they are to see.” The elusiveness, even invisibility, of search engines should be understood in the context of this ease of use and the way

that they are integrated into sociomaterial practices of everyday life (Haider & Sundin, 2019, pp. 53–59).

The conventional ways of searching by opening a search engine app on your smartphone, entering words into the address field of your browser or by starting from the homepage of a web search engine have been extended by, for example, voice assistants. Increasingly, search engines are being built into other devices, such as your car or Google Assistant, which can connect Google services to your freezer as well as other devices and apps. The infrastructure for searching is extremely complex (e.g., Orlikowski, 2007). It encompasses multiple technical parts, such as indexes, algorithms, keywords, user data, physical cables, smartphones, desktops, data centers, electricity, and so forth. There are also all the web pages that are indexed, legislation, policies, and standards. In addition to the users, other people are also a part of the infrastructure: developers (e.g., Badouard et al., 2016), evaluators (e.g., Meisner et al., 2022), search engine optimizers (e.g., Ziewitz, 2019), and so forth. With infrastructure theory, we argue that the national reports being analyzed in this article also form part of the infrastructure of search.

The way search engines co-construct our culture has been explored in relation to many contemporary domains, including race (Noble, 2018), the environment (Haider et al., 2022), health (Toepfl et al., 2022), economy (Rieder & Sire, 2013), and democracy (Kravets & Toepfl, 2021). Not only are the search engines' algorithms biased, but also the way we search and the keywords we choose (Tripodi, 2022). At the same time, research also shows that people have difficulty understanding how search engines work (Lewandowski et al., 2018; Schultheiß & Lewandowski, 2021). For most people, search engines are to some extent invisible in everyday life, and they are also used simultaneously in multiple ways and for multiple purposes (Andersson, 2017). Burrell (2016) distinguishes between different types of search engine "opacity." One type is intentionally created by the companies themselves (e.g., Bilić, 2016). Another type can be attributed to a lack of awareness (literacy) about how search engines and their algorithms work (see also Bhatt & MacKenzie, 2019). The last type of opacity relates to how machine learning makes it difficult to understand the consequences of algorithmic operations. This paradox between being of fundamental importance, and at the same time invisible to many people in everyday life, makes the search engine and its use crucial, but difficult, to study. This poses a challenge in terms of what we can know about how people deal with search engines and how we find it out. This article unpacks some of the implications of this paradoxical situation by focusing on one particular way in which research-based knowledge

about people's everyday lives and their internet use is often obtained: national survey reports.

### 3 | MATERIAL AND METHOD

We approach the question of how online search activities and search engines are represented in national reports based on a qualitative method. As a result of our qualitative approach, it follows that our sample size is limited; this enables a detailed interpretation of the material (Hammersley & Atkinson, 2019). The reports were chosen based on purposeful sampling (Flick, 2022). We chose to analyze reports from countries with similar access to digital devices and the internet, that is, a homogenous sample rather than one with maximum variety. Our first inclusion criterion was the authors' ability to comprehend the language of the reports. Further inclusion criteria included that the reports were published annually, that the reports focus on internet habits at a general level (i.e., not special reports on search engine use), and that the reports were written with the aim of representing a specific country. We have analyzed reports from Sweden, the UK, and the United States published between 2015 and 2021. We limited ourselves to the period from 2015 to 2021 in order to draw conclusions about the current digital culture and the role of search engines in it; we do not attempt to study longitudinal changes. Based on our inclusion criteria, we could have included more than the three countries chosen, however, given our qualitative approach, this would have meant limiting our time span. Instead, we opted for fewer countries and a longer time span; in this way ensuring that one specific report was not an anomaly. On the other hand, further limiting the number of countries would have enabled a larger time span. Nevertheless, we considered it beneficial to analyze reports from one large, one medium and one small country. In terms of saturation, our sample size provides us with enough material to uncover and discuss recurring themes within the selected time span (Meyer & Mayrhofer, 2022).

Based on the criterion of the reports being focused on internet habits at a general level, more specific reports, such as the Special Eurobarometer (2016) report on online platforms and the Pew Internet Institute report on search engine use (2012), were excluded from our material (European Union, 2016). Those reports were excluded because their inclusion would contradict our aim of discussing the potential elusiveness of search engines within more general internet reports. However, these reports are a point of reference during our analysis below. The following reports were analyzed, as listed in Table 1.

TABLE 1 Reports analyzed

Report series	Region	Publishing organization	Published since	Reports analyzed
<i>The Swedes and the Internet</i>	Sweden	The Swedish Internet Foundation	Annual since 2000	2015, 2016, 2017, 2018, 2019, 2020, 2021
<i>Adults' Media Use and Attitudes</i>	UK	Ofcom	Annual since 2005	2015, 2016, 2017, 2018, 2019, 2020, 2020–2021
<i>Digital Future</i>	United States	USC Annenberg School for Communication and Journalism	Annual since 2000	2015, 2016, 2017, 2018, 2021 (no reports published 2019, 2020)

In 1999, the World Internet Project was initiated by a number of universities across the world, including, for example, universities in Sweden, the United States, and the UK. The aim of the project was, and remains, to document the way that the internet changes and affects society (World Internet Project, n.d.). We analyzed reports from two members of the World Internet Project: Sweden and the United States. The UK is also a member of the World Internet Project, with research being carried out by the Oxford Internet Institute. However, they do not publish annual reports rather reports covering different themes. Therefore, to represent the UK, we instead analyze reports carried out by the government agency Ofcom.

The Swedish Internet Foundation, which is an independent non-profit organization, has published reports about internet habits in Sweden since 2000: *The Swedes and the Internet*. The aim of the reports is to obtain facts and insight in to the way in which the internet is developing in Swedish society. The Swedish Internet Foundation is not part of any Swedish public agency, nevertheless, results from its annual survey are widely discussed in Swedish media and public debates. The reports do not ask exactly the same questions every year, rather the questions change slightly in tandem with the public debate (The Swedish Internet Foundation, n.d.).

Ofcom is a UK-government agency that works with broadband, home phone and mobile services, as well as overseeing radio and postal services. Ofcom publishes a range of reports related to the internet habits of citizens in the UK. Our research focused on their report entitled *Adults' Media Use and Attitudes*. The *Adults' Media Use and Attitudes* report has been published annually since 2005. The report explicitly focuses on questions related to media literacy. The reports have some recurring statistics, such as on media use and uptake but are also supplemented with other questions. In line with its focus on media literacy, the report revolves around people's understanding of how various media and technologies work.

From the United States, we are analyzing *Digital Future* reports which are published by the Center for the Digital Future at the USC Annenberg School for Communication and Journalism. The reports have been published

annually since the year 2000. However, at the time of publishing this article, the reports covering 2019 and 2020 have still not been published, even though the 2021 report has. The reports have certain recurring themes and questions, and other themes that change over the years.

Using thematic analysis (Ryan & Bernard, 2003), a close reading of the material was carried out. In this article we argue that search engines, as infrastructures, are elusive. Guided by our infrastructural-theoretical perspective (Bowker & Star, 1999; Star & Bowker, 2010; Star & Ruhleder, 1996), the analytical process consisted of identifying explicit and implicit references to search engines and online search. There are no fixed relationships between using a search engine and other online activities. The entanglement of search and various digital devices adds further complexity. We have included material that explicitly relates to online search and search engines but also material where the reference to search engines or online search is implicitly made. Such implicit associations are described and discussed within the analysis. In a first step, the analysis consisted of many small categories. As a next step, and informed by previous research, the identified material was organized into themes (Ryan & Bernard, 2003). The reports are considered as a single source of material and the themes extend across the different reports, although, when relevant, comparisons can be made between the reports. Quotes within the different themes are not exhaustive but should be read as a representation of the theme. We were able to discern four themes in the reports: (1) *Searching, browsing and surfing*, (2) *Searching and Google*, (3) *Searching as fact-finding*, and (4) *Searching, reliability and bias*.

## 4 | FINDINGS

### 4.1 | Searching, browsing, and surfing

We begin our analysis by highlighting the difficulties in finding a common language to describe the various ways of using the web, in a way that ensures that both those who formulate the questionnaires, those who answer

them, and those who read them interpret them in the same way. We have found a whole jumble of concepts. One way in which searching is represented in the reports is by reference to surfing and browsing; concepts lacking a precise definition. In a general introduction monograph to surfing and search engines, Levene (2010, p. 38) states that “Web navigation, also known as surfing, involves browsing web pages and clicking on hyperlinks.” Browsing is then conceptualized as part of surfing. Both browsing and surfing are described as explorative and undirected activities that do not necessarily have a specific aim (Levene, 2010; see also Savolainen, 2016). Surfing can also be understood as a way of speaking of internet use in layman’s terms, as is also reflected in dictionary definitions, for example, the American digital dictionary [Dictionary.com](#) defines surfing the web as: “to navigate through the World Wide Web or Internet, usually by clicking with a mouse. The term also has a generic meaning of spending time on the Internet” (Dictionary.com, n.d.). The *Oxford English Dictionary* contains several definitions of browsing, including looking at items in a shop, looking through information on a computer, and using a web browser.

In the US *Digital Future* report, surfing the web is referred to as “going online without a specific destination” (Cole et al., 2015, p. 31). On The Swedish Internet Foundation’s website, surfing the web is described in the following way: “It means that you, with the use of a program or app called web browser—Google Chrome, Firefox or Safari, can view different websites on the internet.” Such definitions are in line with the definitions discussed above. In the *Digital Future* report, surfing the web has its own heading, placed under the section “America on the internet.” Within the *Digital Future* reports, the activity of browsing is mainly associated with online shopping (Cole et al., 2015, p. 82). Within the *Digital Future* reports, browsing is also an example of activities carried out on mobile devices and also appears in reference to “generally browsing the internet” (Cole et al., 2016, p. 23; Cole et al., 2017, p. 14).

In the UK *Adults’ Media use and attitudes report*, the terms general surfing and browsing the internet are referred to under the same heading (Ofcom, 2018, p. 118). The term is one option in relation to the question “Finding information online, by activity type” where the other two categories are “Finding/downloading information for work/business/school/college/university/homework” and “To find information on health related issues” (Ofcom, 2018, p. 118). General surfing seems to denote miscellaneous online searching that could include several topics. This is also reflected in the UK reports of 2015 and 2016, where the following categorization of frequent online activities are listed (Ofcom, 2015, p. 31):

- General surfing/browsing the internet.
- Finding information for your leisure time including cinema and live music.
- Finding information about health related issues.
- Looking at news websites or apps.
- Finding information for your work or your job or your studies.
- Looking at job opportunities.
- Looking at adult-only websites.

Unlike the categories referring to leisure and health, for example, surfing/browsing the internet does not refer to a specific topic. The term web browser also appears within the UK *Adults’ Media use and attitudes reports*, for example, in an investigation of people’s preference for app versus browser when carrying out online activities, including searching for information (Ofcom, 2015, p. 73). In the 2016 report it is explained that if respondents require an explanation of “web browser,” the following definition applies: “Use of a web browser means accessing websites through a search engine, directly typing in the website address or through bookmarks or favourites” (Ofcom, 2016, p. 106). This definition is an example of the challenge of identifying search engine use within the reports.

In the Swedish reports, the term surfing is also used to denote use of the internet. The term surfing is sometimes used on its own and at other times described in terms of surfing the web, surfing the net or mobile surfing. As with the other reports, the Swedish reports’ references to surfing do not always explicitly refer to the use of a search engine, but generally browsing the internet, for example: “daily mobile surfing decreases with age” (Davidsson et al., 2018, p. 18). Although there are also examples of surfing being equated with googling (Findahl & Davidsson, 2015, p. 33). This makes it challenging to disentangle the activity of surfing from that of using a search engine. Statistics from a Swedish report state that “More people state that they use Google Search daily (61%) than people who state that they look for information on the internet daily (34%)” (Davidsson et al., 2018, p. 100). The authors of the report interpret this as meaning that people might use Google as a gateway to other websites; rather than entering a web address people use keywords to find websites.

The different ways of referring to searching, browsing, and surfing in the reports make it challenging to establish what is meant by the term. For example, does “generally browsing the internet” refer to the use of a search engine? The search engine is embedded in the general activities of finding information or navigating between sites. It is likely that generally browsing the internet involves the use of a search engine, but it is not

explicitly stated, making it hard to draw precise conclusions. For most people, the actual technology they use to find their way around the web is not interesting and they might not even be conscious of it. In line with Robinson (2009), who notes the varying meanings assigned to “going online ‘at least occasionally’” (p. 490) by respondents, and a subsequent lack of unpacking of the concepts by researchers, we find a variety of terms being used to denote the use of a search engine within the reports. From this there follows a difficulty in identifying longitudinal changes, contrasting results between countries as well as an uncertainty regarding what the results of the reports convey. In contrast, the special Eurobarometer on online platforms (2016) does not mention the term surfing or browsing, nor does the Pew Research Center’s (2012) search engine usage report; instead, those reports focus explicitly on the use of a search engine (Purcell et al., 2012).

## 4.2 | Searching and Google

It is well known that the act of using a search engine has for many become synonymous with googling and the use of Google Search. The title of Vaidhyanathan’s (2012) influential monograph *The Googlization of Everything: (And Why We Should Worry)* captures this phenomenon. As many have pointed out, using Google has for many become synonymous with using the internet (e.g., Haider & Sundin, 2019; Hillis et al., 2013; Noble, 2018). Whereas surfing the web, as discussed above, renders the role of a search engine invisible, reference to Google Search (or just Google) is paradoxically one way in which online search and search engines are made visible. This is also expressed in the reports we have analyzed, even if the extent of reference to Google Search varies within the reports. In some cases, there are specific references to Google Search and/or Google as a search engine. In other cases, the reports refer to Google without necessarily specifying which part of Google it is that is being discussed.

In 2018 the Swedish reports began asking questions about Google Search specifically, for example, through questions about common daily activities online, in which Google Search was one option (Davidsson et al., 2018, p. 19). The report also included (Davidsson et al., 2018, p. 100) the percentage of internet users that search for information online in various ways. However, Google Search and searching for information in general were surprisingly dealt with as different categories. The specific focus on Google Search ended in 2019 and there was no mention of Google Search in the 2020 and 2021 Swedish reports. Instead, questions were asked about people’s concerns regarding online surveillance and personal

integrity, where Google and Facebook were given as examples. Questions were also asked in relation to Google Meet (Andersson et al., 2020). However, “to google” was mentioned in the 2015 (Findahl & Davidsson, 2015) report, in relation to what people use their tablet for (p. 33) and as a way of referring to online search (p. 35). The verb was also used in the 2017 report as a way of exemplifying what is meant by “searching online” (Findahl & Davidsson, 2015, p. 128). To use the verb *to google* is thus a way of exemplifying online search in the reports and it is sometimes used interchangeably.

In the UK *Adults’ Media Use & Attitudes* reports, there was a recurring question that involves Google as an example of a search engine: “How do you think search engine websites such as Google or [Ask.com](#) are mainly funded?” (Ofcom, 2015, p. 45). The question was asked at least from 2015 and until 2018. In 2016, [Ask.com](#) was replaced with Bing as an example of a search engine. Another recurring statement in relation to Google is: “Understanding of paid-for results returned by Google searches, among adults who use search engine websites or apps” (Ofcom, 2016, p. 181). In the 2018 report, Google was also mentioned as an optional answer to the following question: “Which, if any, of these online resources would you use to learn new things” (Ofcom, 2018, p. 124). Other options were YouTube, BBC website, social media websites and apps, Wikipedia, online educational resources, and other websites. Here we can see another way of approaching search engine use—to take a starting point in learning new things. Prior to the asking of this question, in 2017, a similar question was asked: “Which if any of the following would you do if you got stuck or were unsure about how to do something online?” (Ofcom, 2017, p. 109). However, Google was not a given option, although YouTube, for example, was.

In the US *Digital Future* reports, a recurring question is asked about the reliability of search engines, further discussed under the heading *Reliability and bias*. To describe the question, a reference is made to Google: “The percentage of Internet users who said that most or all of the information provided by search engines such as Google is reliable and accurate [...]” (Cole et al., 2015, p. 53). Other than this question, Google is astonishingly not mentioned in *Digital Future* other than a few questions on Google Play and Google Plus. Also, names of corporations are not mentioned in the *Special Eurobarometer* (2016), while in the *Pew Search Engine Use* (2012) corporations, especially Google, is mentioned recurrently.

As described above, one way of investigating online search and the use of search engines is by asking questions about Google search and the verb *to google*. While some questions are posed in relation to Google as a search engine, googling, and Google Search, it is noteworthy that

social media platforms, Facebook in particular, are addressed to a much larger extent than Google Search. As an example, searching for the term Facebook in the 2016 Swedish report returns 48 instances whereas a search for Google (also as a verb) returns 4 hits. This is not unique for the 2016 report but can be described as a pattern throughout all the years. In the 2021 Swedish report, which had the highest number of hits in response to a search for Google, 32 instances were found, Facebook returned 114. Similar patterns also exist in the reports from the UK and the United States. Nevertheless, the gap between mentions of Google and mentions of Facebook is biggest within the Swedish reports. While this is not a precise measure, it reveals that social media is dealt with differently than Google Search in the reports; also indicating a greater invisibility of the use of search engines within the reports than that of social media.

Still, by highlighting Google Search and the verb google, the search engine and the activity of online search become somewhat more visible. At the same time, the theme Searching and Google also highlights the difficulties that arise when Google is sometimes treated as its own source. This uncertainty about what Google Search actually is, is noteworthy, and perhaps illustrates the inclination of the company to move beyond being a resource for finding other sites to, at least sometimes, being the actual source of a user's knowledge search (see also Juel Vang, 2013). With Google Knowledge Graph and the featured snippets function, the search engine aims to be more than just an intermediary, in many cases, users do not have to go further than Google Search to get the answer they are looking for. The shift towards generating content, rather than just presenting links to users, is expected to gain further momentum as search engines integrate generative AI technologies. Both Bing and Google Search are already actively experimenting with this approach, and numerous other search engines are following suit.

### 4.3 | Searching as fact-finding

Search engines are used for locating information online. People search for a wide range of information through search engines, from opening hours of a local store to complex health issues. This makes it challenging to account for the ways that people use search engines in everyday life. The term *facts* is one way in which the use of search engines is made visible in the reports.

In the *Swedes and the internet*, associations between facts and online search are made in different ways. For example, in the 2015 report there is a chapter entitled: *Facts, information and e-commerce*. The chapter begins by

describing that “To search for information, to google and check facts has become part of internet users everyday life” (Findahl & Davidsson, 2015, p. 35). The word searching is used throughout the chapter but is not clearly defined. Different forms of information that people search for on the internet are described. Whereas other forms of searching are defined in terms of area of interest, such as culture, politics, looking up words, health information and political information, facts are used in more generic terms as merely “search for facts” (Findahl & Davidsson, 2015, p. 35). In the same report, a reference to facts is made in relation to the use of tablets (Findahl & Davidsson, 2015, p. 30). People were asked to submit a maximum of three activities that they use their tablets for: googling/surfing as well as checking facts, were search-related activities in the list. In this way, a distinction is being made between googling/surfing and facts. On the other hand, the report asks the extent of children's use of the internet for two activities; acquiring information and facts, and carrying out schoolwork (Findahl & Davidsson, 2015, p. 55; also Davidsson & Findahl, 2016, p. 31; Davidsson et al., 2018, p. 66). Searching for facts and searching for information is equated within the examples of children's use of the internet for searching for facts and school work.

An association between searching and fact-finding is also present in the *Digital Future* reports. Under the heading “Activities on the Internet: fact-finding, information sources, and education,” reasons for going online are described and divided according to the following categories: Look up a definition, Find/check a fact, Get info for school and Participate in distance learning (Cole et al., 2015, p. 22; Cole et al., 2016, p. 21; Cole et al., 2017, p. 10; Cole et al., 2018, p. 24). However, no mentions are made of search engines. Therefore, it is left to the reader to interpret how such activities are carried out. In the UK *Adults' Media Use & Attitudes report*, the term facts appears in relation to how people check factual information that they find online, for example, through social media and search engines (Ofcom, 2017, p. 141) and also in relation to the “Extent to which internet users believe the truthfulness of factual information they find online” (Ofcom, 2017, p. 155; Ofcom, 2018, p. 171; Ofcom, 2019, p. 18).

The way questions are asked in relation to facts (whatever *facts* are) is detached from the contexts in which the search takes place. Even when the context is described, such as in relation to schoolwork, the term facts is used as a generic term including all forms of information. The meaning of facts is not defined, and the role of search engines in fact-finding is either not clear or simply taken for granted. The association often made between facts and search engines is well established in previous research (e.g., Gärdén et al., 2014; Rieh et al., 2016). What we see here is that this association is



also present in the reports. What is taken for granted, if thought about at all, is that search engines are used to find facts. This conclusion can be related to the previous discussion about terminological confusion. Moreover, the association between search engines and facts reinforces a simplistic understanding of knowledge as consisting of a set of compiled facts, and that locating information should be an easy and quick task (Huvila, 2016). Such a view of knowledge not only risks making it unclear why the so-called facts appear on the screen in the first place but can also foster a fragmented understanding of knowledge and its construction. With generative AI, these risks are amplified. When ChatGPT is used as an information search tool, it relies on extensive probability calculations generated by a language model, rather than presenting users with direct links to web pages authored by individuals. Unlike traditional search engines for the internet, the output of generative AI such as ChatGPT lacks the explicit accountability associated with a traditional author.

#### 4.4 | Searching, reliability, and bias

In tandem with the dominance of Google Search in the Western world, a critical discussion on search engines has arisen; problematizing issues of, for example, sexism and racism (Noble, 2018), relevance assessments (Sundin et al., 2022), ranking (Rogers, 2021), and Google's role in the classroom (Carlsson, 2021; Lindh et al., 2016). Such discussions draw attention to the lack of neutrality of search engines, and consequently search results. In the reports, the search engine is problematized in different ways; focusing on the reliability of search engines, attitudes towards search results, and people's skills as searchers.

In relation to the reliability of search engines, the *Digital Future* report has a recurring question regarding the reliability of search engines (Cole et al., 2017, p. 36). In relation to search results, questions of trust and accuracy are drawn into the picture. The UK *Adults' Media Use & Attitudes report* recurrently asks people to describe the accuracy of search engine results on a scale. These questions are examples of gauging people's opinions on search engine results, and their critical awareness. A challenge being that the questions are asked about searching in a generic way, while research points to the importance of context in relation to how people evaluate and navigate search results (Andersson, 2017).

The reports address if and how people go about establishing the accuracy of website information found online, both by asking questions, and by testing respondents' abilities to identify paid links (Ofcom, 2018, p. 167). While some of the questions regarding the evaluation of

online information explicitly point to the role played by search engines, this association is often not made. Instead, questions are asked about accuracy of information found online, for example, in the 2019 *Swedes and the Internet* report, respondents are asked: "How much of the information that you find on the internet do you consider reliable?" (Andersson, 2020, p. 88; Findahl & Davidsson, 2015, p. 81).

In the reports, the questions of reliability and bias are framed around a literacy perspective—information literacy, media literacy, digital literacy or similar—with discussions put forth regarding people's critical understandings of search engines. Questions regarding how confident people are in their ability to search online can also be anchored in a literacy approach. For example, in the UK report: "How confident are you that you can find the information that you want online?" (Ofcom, 2015, p. 150; Ofcom, 2016, p. 149). The use of a search engine is not made explicit. Still the headline for the category is "confidence online: search, safety and advertising" (Ofcom, 2016, p. 149), and the questions that follow relate to search engines. In the Swedish reports, questions related to finding the right keywords were asked in 2017, 2018, and 2019.

The elusiveness of online search and the role of search engines becomes particularly striking when related to literacy. Search engines are becoming easier and easier to use, and mobile devices make them even more convenient to integrate into the many practices of everyday life. Therefore, most people do not reflect on what search engines do other than the fact that they deliver a satisfying answer that is rarely questioned. The tentative attempts seen in the survey reports to gauge the respondent's experience-based level of knowledge are therefore difficult to make meaningful. Importantly, it seems that the more closely the surveys are conducted in a manner that is similar to the ways that online search is carried out in daily life, the more rigid the findings are. Ofcom discusses this in their 2020/2021 report, carried out during the Covid-19 pandemic. The proportion of people correctly identifying advertisement online increased, which they attributed to a change in methods; from showing people an example of a search engine advertisement on paper (face-to-face) to displaying it online, thereby creating a more realistic setting. Similar methodological questions continue to be discussed within research on online search (Borlund, 2016; Rutter, 2017).

## 5 | CONCLUDING REMARKS

Our study of survey-based reports on internet experience, published between 2015 and 2021, shows how difficult it

is to gain insights into how people search online and the role search engines play in everyday life. Indeed, in the Western world, online search via search engines has become (almost) synonymous with one particular commercial search engine—Google Search. Hillis et al. (2013, p. 7) even talk about how “Google has achieved what [they] argue is its consecrated status.” The combination of the almost sacred status of the pathway to knowledge and the invisibility it has achieved, through its integration into sociomaterial practices of daily life, is problematic, as many research studies have noted (e.g., Granka, 2010; Haider et al., 2022; Introna & Nissenbaum, 2000; Kravets & Toepfl, 2021; Noble, 2018; Toepfl et al., 2022). The current development of machine learning algorithms and how they are integrated into traditional search engines through chatbots is unlikely to decrease the invisibility of search engines (cf., Shah & Bender, 2022). On the contrary, a search result in the form of a written text might reinforce the “opacity” of search technologies (cf., Burrell, 2016).

The first research question in our article concerns the identified themes: In Western internet usage reports, what themes can be identified in relation to online search and search engines based on the questions posed? The following themes were identified: *Searching, browsing and surfing*, *Searching and Google*, *Searching as fact-finding*, and *Searching, reliability and bias*. The boundaries between the themes are not clearly drawn; rather, they overlap and coexist. The second research question relates to normative assumptions that drive these surveys and the emerging themes: What normative assumptions inform the positions search engines are assigned (or not assigned) in these reports and the underlying surveys? As a result of the terminological confusion noted in the analysis and the downplayed role assigned to the search engine in the reports (especially compared to social media of various kinds), search engines are assigned an almost neutral role as giving access to objective information. One of the themes discusses search engine bias, but without mentioning Google by name. Search engines become one and the same regardless of which search engine is being considered and how its algorithms work. When search engines appear in national survey reports on internet experience, they tend to be closely associated with fact-finding, as opposed to leisure and pleasure.

The third question relates the normative assumptions to a broader question about search engines in society: How can these themes and related normative assumptions be understood to contribute to the specific position assigned to search engines in the information infrastructure of society at large, and with what possible implications? National survey reports, such as those analyzed here, which serve as the basis for policy decisions at

various levels, do not merely reflect people's behavior and experiences but also contribute to how questions are framed, asked, and discussed. In the introduction to this article, we posit that search engines are elusive. By analyzing national survey reports, this article not only comments on the difficulties of measuring search engine use and experience or the fact that search engine use and experience are invisible in the reports, but we argue that the survey reports actually contribute to the ongoing construction of this invisibility. As essential components of an information infrastructure, search engines are most noticeable when they do not function as intended (Haider & Sundin, 2019). However, because search engines for the most part function, aside from lack of Internet access, they often remain invisible. Critical issues raised around the use of search engines, most notably racism and related forms of oppression (Noble, 2018), could be seen as a failure of the infrastructure, at least when assuming a normative standpoint. However, these issues are not necessarily something that people become aware of in terms of a breakdown, meaning that the infrastructure remains invisible.

The reports analyzed in the study are not randomly selected, which has implications for possible generalizations to other international reports. For example, we are aware of the narrow focus on European-American report survey series and that our findings do not necessarily reflect surveys in other parts of the world. A follow up study should ideally delve deeper into questions of differences and similarities in how internet experience is surveyed globally, considering, for example, variations in the market shares of search engine companies and potential differences between the Global South and Global North. Another limitation is that the reported study does not analyze changes in the survey reports over time. A follow-up study could focus on whether and how search and search engines are treated differently in the reports from the early 2000s to the present.

In the reports studied, search engines—even Google—are not highlighted as much as social media and what people do with or think about them is not nearly as well known. To some extent, this finding reflects other observations about the difficulty people have in disentangling their search activities from the practices in which they are embedded in a way that makes the search engine noticeable to themselves (e.g., Sundin, 2020). However, the nature of the survey report, which is often intended to inform national policy making, risks reinforcing the elusiveness of search engines; put bluntly, what cannot be measured cannot be discussed at the policy level. This invisibility may result in insufficient attention being paid to search engines, including their use and effects in legislation, in school education, and in the general formation of

public knowledge about search engines in society. To draw on the title of one of the classic books in information studies (Wilson, 1977), without public knowledge, private ignorance is difficult to avoid.

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