



LUND UNIVERSITY

Invisible Search

Information Literacy in the Swedish curriculum for compulsory schools

Sundin, Olof

Published in:

Nordic Journal of Digital Literacy

2015

Document Version:

Other version

[Link to publication](#)

Citation for published version (APA):

Sundin, O. (2015). Invisible Search: Information Literacy in the Swedish curriculum for compulsory schools.

Nordic Journal of Digital Literacy, 10(4), 193-209.

https://www.idunn.no/dk/2015/04/invisible_search_information_literacy_in_the_swedish_curri

Total number of authors:

1

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00



Nordic Journal of Digital Literacy,
volume 10, no 4-2015 p. 193–209
ISSN online: 1891-943X

Invisible Search: Information Literacy in the Swedish Curriculum for Compulsory Schools

Olof Sundin

Professor in Information Studies, Department of Arts and Cultural Sciences, Lund University, Sweden

olof.sundin@kultur.lu.se

ABSTRACT

This article explores the ways in which abilities to search information and evaluate sources, and critical understanding of these activities are addressed in the *Swedish curriculum for compulsory school, preschool classes and recreation centres* (Lgr11). The article is based on a qualitative textual analysis of Lgr11 and grounded in a socio-material understanding of technology, information and its use. The analysis shows that search engines and other infrastructures for information provision in society are regarded as neutral infrastructures in the curriculum. This is problematic when attempting to achieve critical media and information literacies.

Keywords

media and information literacy, curriculum, information searching, evaluation of sources

INTRODUCTION

The article begins with the assumption that being able to find and evaluate online information is crucial for participation in contemporary society. Yet this is often taken for granted. In order to fully grasp the ways in which algorithms and digital devices permeate our lives, the notion that our minds should in fact be seen as distributed is gaining ground (cp. Säljö, 2012). However, new technologies for information searching and communication have difficulty in finding a place in the educational system (Lankshear & Knobel, 2008; Sundin & Francke, 2009). How searching and source evaluation are treated in the Swedish curriculum for compulsory school could be regarded as one example of this. Online information is often produced, published and accessed in different ways compared to information in print, which has dominated our culture since the sixteenth century. Traditional ideas on authorship, publication and access are challenged by, for example, crowdsourcing, personalised information searching and new forms of visualising knowledge. When the information infrastruc-



ture in society changes, it – it is argued – becomes necessary to foster abilities to participate in society as well as to critically and reflectively understand this new infrastructure.

This article explores how the current *Swedish curriculum for compulsory school, preschool classes and recreation centres* (Lgr11, 2011, published by the National Agency for Education in Sweden) includes aspects of media and, particularly, information literacy. Media literacy and information literacy are overlapping yet distinct concepts in the research areas of media and information studies. One important task of media and information literacy in education is to make the complexity of the seemingly simple visible. The overall objective of this study is to analyse how abilities to search information and evaluate sources, and critical understanding of these activities, two central constituents in late modern society, are addressed in Lgr11. The questions asked are: how are practices of information searching and source evaluation described and given meaning in the curriculum? How are these descriptions of practices entangled with information technologies? How is progression regarding abilities to search information and evaluate sources expressed in the curriculum between different age groups?

In Sweden, the curriculum has included aspects of information searching and source evaluation since the former curriculum, Lpo94 (Ministry of Education, 1994). Recently, the Swedish *Education Act* stipulated that every primary and secondary school must provide pupils with access to school libraries (SFS 2010:800). Studying the Swedish curriculum with respect to information literacy is therefore of particular interest at the same time, as Lgr11 may be regarded as an example that can analytically be transferred to other national curricula. An in-depth analysis of a specific curriculum contributes to developing the theoretical understanding of how media and informational aspects of literacy are visible in the regulatory documents for teaching and instruction, and the consequences they have (Englund, 2011). This study has the potential to lead to a renewed international interest in the curriculum level of new literacies.

In order to account for what seems to be an ever-continuing digitisation of society, information literacy has recently been wedded to media literacy to form the term Media and Information Literacy (MIL), particularly in policy texts (e.g. Carlsson, 2014; Unesco, 2013). A further goal of this article is to argue for the need to consider research on information literacy in relation to research on media literacy.

INFORMATION LITERACY

A vast number of qualifiers to literacy have popped up in the last decades, such as computer literacy, digital literacy, media literacy, ICT literacy, citizen literacy and information literacy (cp. Bawden, 2008). In this article, these qualifi-

ers are regarded as aspects of literacy that bring certain facets – often overlapping in various ways – to the centre of an analysis, a work practice or a policy agenda. Furthermore, these qualifiers are often developed in different disciplines and in relation to specific professional groups. Taken together, the different literacies often overlap with each other, but are not always developed in traditions with much contact. This article focuses on the dimension of information literacy, an aspect of literacy that has primarily been developed in the information studies discipline (and similar fields) as well as in the professional field of librarianship. Often referred to when discussing educational aspects of the networked society are also media literacy (e.g. Buckingham, 2003; 2007), digital literacy (e.g. Erstad, 2010), or new literacies (e.g. Lankshear & Knobel, 2008); as concepts as well as research traditions.

Information literacy as a concept captures, among other aspects, formulating (re)searchable questions, information searching, Internet navigation as well as the critical assessment of information sources (Limberg, Sundin & Talja, 2013). The growing interest in these and similar areas could both be regarded as a cause and a consequence of the transition from teacher-centred to pupil-centred instruction (Alexandersson & Limberg, 2011). At the same time, in an analysis of a series of research projects (1998–2010) on information literacy in schools and libraries, Alexandersson and Limberg (2011, p. 134) suggest that ICT in schools has so far been negotiated to fit the practice of traditional schooling rather than becoming a “catalyst of change”. This is exemplified by how pupils, when working with projects without enough guidance from teachers, tend to search for facts rather than understanding (Gårdén et al., 2014; cp. Blikstad-Balas & Hvistendahl, 2013). Young (2013) states that there are two competing curriculum models: one that focuses on subjects and the role of the teacher as an authority of knowledge, and the other focusing on learners. He argues for a need to transcend the two models so that exaggerations of how new technology will revolutionise learning could be balanced by a more grounded understanding of knowledge.

One basic question in curriculum theory is what exactly counts as knowledge in schools (Englund, Forsberg & Sundberg, 2012). No matter whether we use the terms information literacy, media literacy or digital literacy, it is always a question of getting space in the curricula as well as in classroom practices. Furthermore, the way in which information literacy (and likewise) is addressed is vital. Buckingham (2006, p. 263) argues that “education *about*” media is a precondition “for education *with* or *through* media” (emphasis in original). Translated for the field of information literacy, it is argued here that education about searching is a condition for meaningful education with or through searching. Having said that, making information literacy an object of learning and teaching has proven to be very difficult (Limberg & Sundin, 2006). Still, Buckingham (2006) seems to define searching (or information retrieval) as a functional skill by nature when he advocates for going beyond a functional skills approach to digital literacy. In contrast, this article suggests that education on searching is now as important as education on media; or even that, in the time

of media convergence, it is not possible to meaningfully separate search engines, social media and other features of Internet development from media.

The educational researcher Caroline Liberg, Jenny Folkeryd and Åsa af Geijerstam (2013) make a useful distinction in their analysis of how mother tongue reading (Swedish) is handled in Lgr11. They distinguish between intratextual and intertextual reading, a distinction which, for the purpose of studying information literacy is, in this paper, altered and translated to intratextual and intertextual information searching. Intratextual information searching is about finding information within a given source, while intertextual information searching is about finding information in a broad textual universe, such as in a library, in a structured database or on the Internet. Information literacy is normally concerned with intertextual information searching rather than with intratextual searching.

Information literacy in the curriculum has been discussed in the past (e.g. Bruce, C., 1997), but the issue has gained new currency in the light of the ubiquity of digital tools in all aspects of life. When curriculum issues are addressed in the literature on information literacy, reference is most often made to how information literacy could be integrated into specific curricula (e.g. Boss & Drabinski, 2014; Harris, 2013; Moselen & Wang, 2014). Earlier literature has seldom questioned the regarding of information literacy as a pre-defined, stable set of competences (Tuominen, Savolainen & Talja, 2005). The qualifiers to literacy mentioned above, as well as what can be called traditional print literacy, are often interpreted as competencies or skills a person needs in order to be considered literate (Buckingham, 2007, p. 149; Limberg et al., 2013). The information literacy tradition has been criticised for unquestioningly taking the individual as a starting point, hence disregarding social, cultural, economic and critical aspects (Kapitzke, 2003). This could be contrasted with media literacy, where the starting point traditionally has been mass media and its role in society (Martin, 2008). Due to a practical theoretical turn in information studies (e.g. Lloyd, 2010), there is a growing interest in these aspects within information literacy research. This interest also includes relating information literacy to how information is produced and communicated in the network society (Andersen, 2006; Bruce, B. C., 1997; Limberg et al., 2013; Sundin & Francke, 2009).

In the next section, cues are taken from a socio-material tradition in order to understand information literacy as dependent on technologies and practices.

A SOCIO-MATERIAL PERSPECTIVE ON INFORMATION LITERACY

According to Street (1984), literacy may be understood in an autonomous model that views reading and writing as neutral skills and treats literacy in the singular, or in an ideological model that understands literacies within the social practices they are enacting. The ideological model relates literacy to power

when different norms of literacy take the foreground in different social practices. By underlining that activities of information are carried out within a practice it is here emphasised that information searching and source evaluation are not merely cognitive and rational affairs, but rather something that is embedded in routines and mutually constructed by people, activities and artefacts, including digital technologies, available in a given practice (e.g. Cox, 2012; Haider, 2012). With reference to Street (1984), the current study is located within an ideological model of literacy, and brings with it an interest in how information literacies are constructed in specific situations, rather than starting from a predefined set of abilities. Consequently, here the focus is on how information literacy is *achieved* in the curriculum.

An ideological model of literacy is often referred to as being a part of a socio-cultural framework of how people's activities and tools are jointly shaped in social practices. In this analysis, the tool metaphor is extended and given meaning within a socio-material understanding, in which non-humans are analysed as actors who shape practices in the same way as humans (Latour, 2005). This upgrading of technologies, and other artefacts, as co-constructing social practices underlines the need to understand a practice as something actors – humans as well as non-humans – have jointly constructed. Another concept of importance, stemming from the same socio-material tradition, is translation (Callon, 1986). Actors must, in this comprehension, translate and adjust their activities in relation to each other. Mager (2009) identifies Google as such a central actor on the Internet, and it could be described in the words of Callon (1986) as an “obligatory passage point”. By that, it is meant that Google has such a monopolistic position that both web searchers and web producers need to translate to and adjust to the search engine in order to be successful in pursuing their goals. When teachers and pupils are expected to develop teaching and learning in the digital sphere, the question might be how the educational system has translated their activities to Google and other digital nodal points.

Educational technologies, analogue as well, have always co-produced practices of learning and teaching in schools (Sørensen, 2009). Bertram Bruce relates literacy to a socio-material understanding and states that, “a theory of literacy in a particular setting or community needs to incorporate an analysis of the relevant technologies” (1997, p. 304). Research on information literacy should accordingly include an understanding of the technologies involved, not as something separate from literacy but as socio-material or socio-technical (Tuominen et al., 2005). For example, Google Scholar co-produces the relevance of academic knowledge, which has consequences for what critical information literacy should include (van Dijck, 2010). Säljö (2012) uses Latour's concept of the black box in order to describe how knowledge is built into algorithms of digital technologies, such as search engines, and he discusses the need to open up powerful digital learning tools.

METHOD AND MATERIAL

This study was carried out by means of an analysis of Lgr11 (2011) and related documents, such as official comments on course plans. Lgr11 is published in one volume by the Swedish National Agency for Education and consists of the introductory chapter *Fundamental values and tasks of the school* (5 pages), followed by the chapter *Overall goals and guidelines for education* (7 pages). In the third and last chapter, 20 syllabi and their knowledge requirements (249 pages) are presented. The knowledge requirements for a passing mark are, in the Swedish curriculum for compulsory school, specified in a grading scale from A to E, where A is the strongest grade. In the discussion below, the phrasing for the grade E is used. The presentation of each subject begins with a short general introduction, followed by *The aim of the subject*. This section ends with a conclusion or summary that is presented in bullet points. Then follows the heading *Central content* in which the learning outcomes for different levels (years 1–3, 4–6, 7–9) are described. There is an English version of Lgr11, however the commenting texts are in Swedish and thus, when quoted, have been translated into English.

This study is based on a qualitative analysis of textual documents carried out in three consecutive phases (compare Wolcott, 1994). The first analytical phase constituted descriptive reading in order to establish what the documents analysed actually say, and also to identify where in the texts and how central terminology related to source evaluation and searching were referred to. In the second phase, a continuous comparative analysis of the central terminology was carried out. This was primarily done by means of a table listing central terminology in different subjects, years and knowledge requirements in Lgr 11 alongside each other, in order to facilitate comparison. The third phase consisted of a theoretical reading of the central terminology in Lgr11 and related documents. The theoretical reading was approached by the means of key concepts from earlier literature (particularly intratextual and intertextual searching), as well as with a socio-material understanding of information literacy that particularly conjures up how literacy practices are enmeshed with notions of information technology.

The first two analytical phases, which focus on description and comparison, anchor the theoretical reading in the empirical material. Consequently, the descriptive and comparative dimension of the findings make the analysis more transparent. At the same time, the socio-material perspective puts certain aspects into focus and leaves out others. When combining the different analytical phases, a purely inductive or deductive approach to analysis has been avoided in favour of an abductively oriented approach, which here refers to when the analysis moves back and forth between the empirical material and the theoretical starting points (Alvesson & Sköldbberg, 2009, p. 3ff.).

THE SWEDISH CURRICULUM FOR COMPULSORY SCHOOL

Sweden has nine years of compulsory schooling, starting from the year the pupils turn seven. The formal regulations for the compulsory school are set in the Education Act (SFS 2010:800) and the Swedish curriculum for compulsory school (Lgr11). The public report that preceded the curriculum reform (SOU, 2007:28) is also important. Schools could be organised either by municipalities or as privately run schools. The National Agency for Education “supervises, supports, follows up and evaluates the school in order to improve quality and outcomes” (the Swedish National Agency for Education, 2014). One example of the supervising role of the National Agency for Education is its examination of how IT has spread and is used in Swedish schools. In a report from 2013, it is stated that when using computers, 40% of the pupils in years 1 to 3 are good or very good at finding the information they are looking for on the Internet; but only 11% are good or very good at finding out if they could trust that information (the National Agency for Education, 2013, p. 57). This report is a follow-up on IT use in Swedish schools conducted every three years. The results from years 1–3 are based on teachers’ estimates of pupils’ abilities, while older pupils have answered the questions themselves. The method used is primarily questionnaires. In years 4–6, 83% of the pupils report they are good or very good at finding the information they are looking for on the Internet, but only 58% of pupils state they are good or very good at finding out if they could trust that information (the National Agency for Education, 2013, p. 58). According to the report, 87% of pupils in years 7–9 report they are good or very good at finding the information they are looking for on the Internet. However, only 63% of pupils state they are good or very good at finding out if they could trust that information (the National Agency for Education, 2013, p. 59).

According to Englund (2012, p. 20ff.), four New Public Management trends are visible in Swedish contemporary educational politics: stronger organisational differentiation, standardisation through learning outcomes, market solutions for the school system and a growing presence of schools as businesses that attract venture capital. Compared with earlier Swedish curricula, Lgr11 stands out in a number of ways. It consists of clear goals, both general learning outcomes and learning outcomes for the different syllabi. The syllabi are supplemented with specific knowledge requirements for each syllabus, including different levels and different grading (from A to E). The syllabi and their knowledge requirements make it possible to assess whether a student fulfils what is intended in each syllabus. Lgr11 continues a development towards goal-oriented education that began with its predecessor, Lpo94. At the same time, the school system has a strong organisational differentiation, where pupils can select specific subjects and choose between different schools. This development began in Sweden in the late 1980s and has since continued through the privatisation of schools. As a result, differences between schools have increased while school classes themselves have become more homogeneous. (Englund, 2012)

FINDINGS

The significance of information and how it is searched for, selected and evaluated – a connection that in research often underpins descriptions of the term information literacy – is already emphasised in the first chapter of Lgr11:

Pupils should be able to keep their bearings in a complex reality, where there is a vast flow of information and where the rate of change is rapid. This is the reason that study skills and methods of acquiring and using new knowledge are important. It is also necessary that pupils develop their ability to critically examine facts and relationships, and appreciate the consequences of different alternatives. (Lgr11, 2011, p. 9)

This formulation is exactly the same as in the predecessor to today's curriculum, Lpo94 (Ministry of Education (1994). Notably, "skills and methods of acquiring" are separated from "critically examine facts", a theme we will return to further on. The chapter *Overall goals and guidelines for education* has one heading entitled *Knowledge* [Kunskaper] with 16 bullet points formulating the areas in which the pupils should develop understanding during the nine years they spend in compulsory school. One of these bullet points states that the school is responsible for ensuring that pupils, when leaving the compulsory school, "can use modern technology as a tool in the search for knowledge, communication, creativity and learning" (Lgr, 2011, p. 16). The utilitarian "use" is favoured, and reflexive aspects are put aside.

It should be mentioned that there is no separate syllabus for computing in Swedish primary school. Furthermore the concept of *digital competence*, which is promoted by the European Union as part of the *Key competences for lifelong learning* (European Commission, 2006), is not mentioned in the curriculum, nor in any of the 20 syllabi (Samuelsson, 2014). This could be compared to the situation in Norway, where digital literacy is given the status of a fifth basic competence (Johannesen, Øgrim & Giæver, 2010; Krumsvik, 2008), and where the Ministry of Knowledge has provided a framework on how basic competences (including digital competence) could be used for curriculum development (Utdanningsdirektoratet, 2012). On the other hand, two important abilities that are typically associated with information literacy are stressed in the Swedish curriculum: criticism of sources¹ and information searching.

There is a division of labour in the curriculum concerning which subjects are supposed to deal with information searching and criticism of sources. The subject Swedish has a primary responsibility for searching while criticism of sources, or evaluation, is particularly considered in Social Studies (including the subject Civics) and Natural Science (the National Agency for Education,

1. The Swedish concept *källkritik* (from the German *Quellenkritik*) cannot easily be translated into English. The English language version of Lgr11 uses variations of translations, for example *criticism of sources* and *critical awareness of sources*.

2011b, p. 22). In the National Agency for Education's 2013 report (p. 68), it is established that the pupils' use of computers is most common in Swedish and Civics and that above all, pupils use computers in schools for finding information. Although criticism of sources and information searching are, to some extent, treated in most of the syllabi, these activities could be said to be especially important in the subjects Swedish and Civics. Other subjects could also have been included in the study reported, but in this study, the subject had to be left out.

In the following, the learning outcomes and the specific knowledge requirements for Swedish and Civics are described and analysed.

Civics

Under *Aim of the subject* in Civics, it is stated "Teaching should give pupils the tools to manage information in daily life and studies, and knowledge about how to search for and assess information from different sources" (Lgr11, 2011, p. 189). One of six listed abilities the pupils are supposed to develop is of specific interest: "Search for information about society from the media, the Internet and other sources and assess its relevance and credibility" (Lgr11, 2011 p. 189). The Internet is treated as a source among other sources and not as a topic in itself. In the comments, information searching and evaluation of sources stand out as crucial. One of the overall aims of Civics is stated as developing "knowledge on how to search and evaluate information from different sources" (the National Agency for Education, 2011a, p. 8). This should be achieved by "letting pupils encounter a variety of information sources and become familiar with them" (p. 8). It seems as if the act of searching is made invisible and is above all defined here as searching for information within given sources, what has been previously described as intratextual searching. The next sentence identifies the practice of information searching as a technical aspect: "There are also purely technical aspects of information searching that are important in school. It could include, for example, how to use a dictionary or doing Internet searches" (p. 8). In the quote, techniques for finding information are not given a critical examination. Search engines and encyclopaedias seem primarily to be regarded as neutral infrastructures that could be separated from literacy (cp. Bruce, B. C., 1997). Source evaluation is discussed in a way that emphasises what could be considered as traditional aspects, such as "how to identify message, sender and purpose" (the National Agency for Education, 2011a, p. 24). These are still important, but do not consider changing consequences that come with new forms of digital production and communication (Sundin & Francke, 2009). Information searching is, in the comment material, also related to subject aspects, i.e. asking relevant questions in relation to the aim of the particular investigation, a theme that is often discussed in information literacy research (e.g. Limberg et al., 2013).

In the following, aspects of information searching and source evaluation are presented under the different age groups.

Years 1–3

The central content of specific relevance to media and information literacy can be found under the heading *Exploring reality* and the bullet point “Methods of searching for information from different sources: interviews, observations and measurements. How sources and information can be assessed and processed” (Lgr11, 2011, p. 191). When reading the knowledge requirements to be fulfilled after year 3, it is clear that information searching is not explicitly related to the Internet, even if pupils’ experiences of information from *different media* are emphasised in the requirements. Technologies, and with them the socio-material aspects of information searching, are here invisible.

Years 4–6

Under the central content for years 4–6, the media and information literacy aspects are of particular interest in this article; source evaluation and information searching are located under the heading Information and communication. One of the two bullet points concerns “How to distinguish between messages, senders and purpose in different media with critical awareness of sources” (Lgr11, 2011, p. 191). Again, we see how a critical perspective is nested with evaluation of source. The other bullet point concerns the “Dissemination of information, advertising and shaping public opinion” and how media and popular culture influences sexuality and gender. The knowledge requirements for the passing grade after year 6 includes “Pupils can search for information about society and use different sources in a basically functional way and apply simple reasoning to the usefulness of the information and sources” (Lgr11, 2011, p. 195). Information searching is not a part of the central content, but is interestingly present in the knowledge requirements. Information searching is explicitly mentioned in the requirements, which is not the case after year 3.

Years 7–9

Under the central content for the years 7–9, media and information literacy aspects are once again treated under the heading “Information and communication”. The first of three bullet points concerns the role of mass media in society. The second concerns how the different genres of mass media are built up and how they mediate certain identities and stereotypes. The third bullet point concerns “Opportunities and risks associated with the Internet and communication via electronic media” (Lgr11, 2011, p. 192). The basic knowledge requirements after year 9 demand that “Pupils can search for information about society, using different sources in a basically functional way and apply simple and to some extent informed reasoning about the credibility and relevance of their sources of information” (Lgr11, 2011, p. 197). The usefulness of information, as it was formulated for years 4–6, is here replaced with “credibility” and “relevance”, which could be regarded as a progression. At the same time, technologies for searching, and the way these might mediate certain perspectives or even worldviews, are not scrutinised, leaving searching in the metaphorical black box. The second item on the list deals with how mass media is

built up, but not how “searching” configures our outlook of the world. It should be noted that source evaluation in years 7–9 is supposed to be integrated when studying other content in Civics, but few guidelines are given on how this should be achieved (Comments to the course plan in Civics, 2011, p. 24). Thus, searching as a socio-material practice is not given attention. When the role of media in society is discussed, it is detached from a critical discussion on various technologies that filter between us and web sources (e.g. search engines), without considering the role of searching in society. When navigating the Internet is discussed, practical aspects are highlighted instead: “It is about how you can practically orient yourself in the flow of information, such as where to find different types of texts in a newspaper or how to navigate websites” (the National Agency for Education, 2011a, p. 24f).

Information searching in Civics is part of the knowledge requirements at all three stages, but searching is not explicitly present as central content (the National Agency for Education, 2011b, p. 22). The exception is in the years 1–3, but here information searching is understood as an empirical method (observing, interviewing, and measuring). At the same time, as Liberg et al. (2013) note, information searching and evaluation is not a part of the national test that all Swedish pupils take at the end of year 6. Thus, there is an inconsistent and uncertain treatment of information searching and evaluation in Lgr11 that mirrors earlier classroom studies, which have shown the difficulties of making information literacy an object of teaching (Limberg & Sundin, 2006; Sundin, Francke & Limberg, 2011). There is a progression in the learning requirements from searching information in the years 1–3. When the pupils advance in the educational system to the years 4–6 and later to 6–9, this progression requires “that pupils seek and use information in a more functional way” (the National Agency for Education, 2011a, p. 33). Critical components, such as relevance and trustworthiness are not introduced among the knowledge requirements until the years 7–9, and then in relation to “information sources” or to “media”. Consequently, resources for information searching are, once again, treated as a neutral infrastructure, leaving out the socio-material aspects of searching and evaluation (cp. Bruce, B. C., 1997; Säljö, 2012. This picture is strengthened by the fact that information searching and source evaluation are only discussed as “use”.

Swedish

Evaluating sources and, particularly, searching for information plays an important role in the subject Swedish. Under Aim, we can read the following: “Teaching should also help pupils to develop their knowledge of how to search for and critically evaluate information from various sources” (Lgr11, 2011, p. 211). The section is summarised in the form of a list of five bullet points of which the final one is “search for information from different sources, and evaluate these” (Lgr11, 2011, p. 212). The comment material to Swedish says: “The subject Swedish has the primary responsibility to ensure that pupils learn to search for information from an increasingly varied selection of sources, a knowledge which they then can use in other school subjects” (the National

Agency for Education, 2011b, p. 8). Five headings structure the main body of the text under the different age groups (1–3, 4–6, 7–9) (Lgr, 2011, p. 212f): Reading and writing; Speaking, listening and talking; Narrative texts and non-fiction texts; Use of language, and Searching for information and critical evaluation of sources. As early as the first years, information searching and evaluation are awarded central positions within the subject.

Years 1–3

The specific content of *Searching for information and critical evaluation of sources* is described in the form of two bullet points. The first one concerns searching within texts of different genres: “Searching for information in books, magazines and websites for children”. The second item on the list reads as follows: “Criticism of sources, how the sender of a text influences content”. The knowledge requirements are formulated in the following manner: “Pupils can search for information from a given source, and give an account of the essential parts of the information in simple forms through factual texts” (Lgr11, 2011, p. 216). Information searching is regarded as conducted within given sources, omitting much of the complexity of searching. As stated in the comment material, “In the lower grades it may be sufficient to search for information in books and magazines available at the school or on websites for children” (the National Agency for Education, 2011b, p. 21). Information searching is here regarded as intratextual rather than intertextual. The “criticism of sources”, as described in the central content, is not present in the knowledge requirements.

Years 4–6

The *Central content* for the years 4–6 uses the same headings as in the years 1–3. Under the heading *Searching for information and critical evaluation of sources* there are two bullet points (Lgr 2011, p. 214). The first one is “Information in some different media and sources, such as reference books, from interviews and via Internet search engines”. In contrast to the years 1–3, search engines have been included. The second bullet point reads “How to compare sources and examine their reliability from a critical standpoint”. A critical perspective is included in the assessment of sources, but not in relation to searching. The knowledge requirements state “Pupils can search for, select and compile information from a limited range of sources and then apply simple reasoning to the usefulness of the information” (Lgr11, 2011, p. 2015). The definition of searching in the central content is intertextual, but in the knowledge requirements, the number of sources is described as limited.

Years 7–9

The *Central content* has the same structure as in 1–3 and in 4–6, but *Searching for information and critical evaluation of sources* consists of a list of three bullet-points (Lgr11, 2011, p. 216). The first one is “Searching for information in

libraries and the Internet, in books and the mass media, and also through interviews”. The area of information searching is consequently expanded to include libraries and searching seems to be understood as both intertextual and intratextual searching. Referral to sources is mentioned in the second bullet point: “How to quote and make references to sources”. The third bullet point states, “How to sift through a large amount of information and examine the reliability of sources with a critical perspective”. This bullet point concerns evaluation of sources, also on the Internet. The knowledge requirements for a passing mark read as follows: “Pupils can search for, select and summarise information from a limited range of sources and apply simple and to some extent informed reasoning to the credibility and relevance of their sources and information.” The numbers of sources pupils are searching within are still limited. Again, critical aspects of information literacy are nested with source evaluation, but disconnected from searching and devices for searching, which risks that searching becomes separated from a socio-material understanding of how search engines co-produce knowledge (van Dijck, 2010).

Also in Swedish, there is ambivalence in the central content and the knowledge requirements regarding whether sources should be limited in advance or not, particularly in the years 7–9.

The progression of this skill assumes that students in the earlier grades can seek information from any approved source and reproduce the basic elements of the information. In later years, and at the higher grade levels demands for being able to handle variation in the selection of sources increase, alongside demands on students to demonstrate an increasingly more profound and critical review of information and sources (the National Agency for Education, 2011b, p. 25).

On one hand, pupils are supposed to learn how to search for information on the Internet, but on the other hand, the number of sources should be limited in advance. There is a progression from information searching in single texts (intratextual information searching) to information searching within more than one text (intertextual information searching), but the pupils’ argumentation on trustworthiness and relevance is, according to the specified knowledge requirements, carried out within a pre-defined universe of information sources. Liberg et al. (2013) describe such a phenomenon as “avsmalning” [narrowing], which should be understood as requirements being formulated in a narrower fashion than in the central content. This narrowing is further emphasised by the fact that media and information literacy in general is not a part of the national test in Swedish or in PISA. The national tests are conducted in Swedish in years 3, 6 and 9, and the intertextual aspects of information searching on the Internet are not covered. PISA has a section on *digital reading* in which pupils’ abilities to follow links, find information on a page and scroll are tested, but so far the digital literacy module in PISA relates only to a limited extent to what is here termed media and information literacy.

CONCLUSION

Information searching is becoming easier and more effortless, at the same time as we are growing more dependent on the functionality of the digital technologies with which we live our lives. Memory functions and social relations are increasingly outsourced to the Internet. These changes are only to some extent reflected in the *Swedish curriculum for compulsory school, preschool classes and recreation centres* (Lgr11). The subject Swedish has a special role in relation to information literacy, since it is awarded responsibility for information searching. Despite the space the practice of information searching is given in Lgr 11, information searching is not ascribed a critical perspective and search engines appear to be a part of a neutral infrastructure. A critical perspective is limited to the evaluation of sources and media's role in society, while searching is above all treated as *use* of technology. Thus, information literacy in this respect is separated from an analysis of the technologies involved (cp. Bruce, B. C., 1997). It is here argued that contemporary new networked media make a clear distinction between searching and source evaluation impossible. Pupils use computers primarily for looking up information (the National Agency for Education 2013), and most people appear to regard Google as an obligatory passage point on the Internet (Mager, 2009). However, it does not appear that the curriculum has translated the phenomenon of information searching and evaluation to contemporary technologies for searching and communicating on the Internet with a critical perspective. These have not, with a reference to Säljö (2012), been unpacked from their black boxes or understood as a societal phenomenon.

Lgr11 could be said to prescribe certain ideal practices. Here it has been studied as to how and where information is inscribed into these practices with a specific focus on information searching and evaluation. The study has also revealed the progression of these abilities in the subjects of Swedish and Civics and how critical aspects were not introduced until the years 7–9. The curriculum provides a surprisingly large amount of space for searching as a means of finding information within texts, and less space for finding information in the boundless space of the Internet. This is referred to as differences between intertextual and intratextual information searching (compare Liberg et al., 2013). When the former is considered, the technologies for searching and ranking of relevance are not awarded importance. In our highly digitised and networked society, intertextual information searching becomes more important than before. There seems to be a hesitation and uncertainty regarding what kind of information searching is referred to, and there is a similar hesitation between supplying information to pupils in advance and providing the pupils with capacity to critically search and evaluate information on their own.

The National Agency for Education in Sweden (2013) reports that pupils are self-confident in their abilities to search for information, but less so in evaluating the trustworthiness of the information found. Instead of regarding the high self-esteem of searching capacity as comforting, it could be regarded as sign of an unreflective approach to the giant that is the networked world –

Google in its various forms. Earlier research has illustrated the difficulties involved when pupils are required to find information on their own (e.g. Alexandersson & Limberg, 2011; Blikstad-Balas & Hvistendahl, 2013). Networked media is, to an increasing extent, more invisible in the daily life of its users than media has traditionally been. News articles, encyclopaedia articles and video clips are taken from their original media context and re-contextualised on the Google hit list. The giant search engine becomes super-media and the access point for almost everything. At the same time, this study shows that this awareness is not inscribed into the curriculum. The difficulties of making information literacy (and similar literacies) an object of teaching and learning (Limberg & Sundin, 2006; cp. Buckingham 2006) have, despite good intentions, a parallel in the curriculum.

In contemporary society, media is difficult to discuss without an interest in information searching and other aspects of information literacy. Meanwhile, research in information literacy needs to consider the materiality of information, such as search engine functionalities, and the link to democracy that the media literacy tradition brings. Not least, the searchification of contemporary society has made a critical engagement in the meaning of the “I” in media and information literacy essential. The expanding role of search engines has disrupted much of the traditional media industry. It is argued here that the more information searching is simplified and integrated into other media, the more there is a need for critical media and information literacy.

Acknowledgement

The authors thank the anonymous reviewers for their valuable comments. The work was funded by the Swedish Research Council through the framework grant “Knowledge in a Digital World. Trust, Credibility and Relevance on the Web”.

REFERENCES

- Alexandersson, M. & Limberg, L. (2011). Changing conditions for information use and learning in Swedish schools. *Human IT: Journal for Information Technology Studies as a Human Science*, 11(2), 131–154.
- Alvesson, M. & Sköldböck, K. (2009). *Reflexive methodology: New vistas for qualitative research*. 2nd edn. London: Sage.
- Andersen, J. (2006). The public sphere and discursive activities: Information literacy as sociopolitical skills. *Journal of Documentation*, 62(2), 213–228.
- Bawden, D. (2008). Origins and concepts of digital literacy. In Lankshear, C. & Knobel, M. (Eds.), *Digital Literacies: Concepts, policies and practices* (pp. 17–32). New York: Peter Lang.
- Blikstad-Balas, M. & Hvistendahl, R. (2013). Students’ digital strategies and shortcuts. *Nordic Journal of Digital Literacy*, 8(1), 32–48.
- Boss, K. & Drabinski, E. (2014). Evidence-based instruction integration: A syllabus analysis project. *Reference Service Review*, 42(2), 263–276.
- Bruce, B. C. (1997). Literacy technologies: What stance should we take? *Journal of Literacy Research*, 29(2), 289–309.

- Bruce, C. (1997). *The seven faces of information literacy*. Adelaide: Auslib Press.
- Buckingham, D. (2003). *Media education: Literacy, learning and contemporary culture*. Cambridge: Polity Press.
- Buckingham, D. (2006). Defining digital literacy: What do young people need to know about digital media? *Nordic Journal of Digital Literacy*, 1(2), 263–276.
- Buckingham, D. (2007). *Beyond technology: Children's learning in the digital culture*. Cambridge: Polity Press.
- Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieux Bay. In E. Law (Ed.), *Power, action and belief: A new sociology of knowledge* (pp. 196–233). London: Routledge.
- Carlsson, U. (Ed.) (2014). *Medie- och informationskunnighet i Norden: En nyckel till demokrati och yttrandefrihet*. Göteborg: Nordicom.
- Cox, A. (2012). An exploration of the practice approach and its place in information science. *Journal of Information Science*, 38(2), 176–188.
- Englund, T. (2012). Utbildningspolitisk monopolism: Nya utmaningar. In T. Englund, E., Forsberg & D. Sundberg (Eds), *Vad räknas som kunskap? Läroplansteoretiska utsikter och inblickar i lärarutbildning och skola* (pp. 20–38). Stockholm: Liber.
- Englund, T. (2011). The linguistic turn within curriculum theory. *Pedagogy, Culture & Society*, 19(2), 193–206.
- Englund, T., Forsberg, E. & Sundberg, D. (2012). Introduktion: Vad räknas som kunskap? In T. Englund, E., Forsberg & D. Sundberg (Eds), *Vad räknas som kunskap? Läroplansteoretiska utsikter och inblickar i lärarutbildning och skola* (pp. 5–17). Stockholm: Liber.
- Erstad, O. (2010). Educating the digital generation: Exploring media literacy for the 21st century. *Nordic Journal of Digital Literacy*, 5(1), 56–72.
- European Commission (2006). *Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning*.
- Gärdén, C., Francke, H., Lundh, A.H. & Limberg, L. (2014). A matter of facts? Linguistic tools in the context of information seeking and use in schools. In *Proceedings of ISIC, the Information Behaviour Conference*, Leeds, 2–5 September, 2014: Part 1, (paper isic07). [Available at <http://InformationR.net/ir/19-4/isic/isic07.html>]
- Haider, J. (2012). Interrupting practices that want to matter: The making, shaping and reproduction of environmental information online. *Journal of Documentation*, 67, 639–658.
- Harris, B. R. (2012). Subversive infusion: Strategies for the integration of information literacy across the curriculum. *The Journal of Academic Librarianship*, 39(2), 175–180.
- Johannesen, M., Øgrim, L. & Giæver, T. H. (2014). Notion in motion: Teachers' digital competence. *Nordic Journal of Digital Literacy*, 9(4), 300–312.
- Kapitzke, C. (2003) (In)formation literacy: A positivist epistemology and a politics of (out)formation. *Educational Theory*, 53(1):pp. 37–53.
- Krumsvik, R. (2008). Educational technology, epistemology and discourses in curricula in Norway. *US-China Education Review*, 5(5), 1–17.
- Lankshear, C & Knobel, M (2008). Introduction: Digital literacies – concepts, policies and practices. In C. Lankshear & M. Knobel (Eds.), *Digital literacies: Concepts, policies and practices* (pp. 1–16). New York: Peter Lang.
- Latour, B. (2005). *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Lgr11 (2011). *Curriculum for the compulsory school, preschool class and the recreation centre*. Stockholm: Skolverket.
- Liberg, C., Folkeryd, J. W. & af Geijerstam (2013). In S. Bagga-Gupta, A.-C. Evaldsson, C. Liberg & R. Säljö (Eds.), *Literacy-praktiker i och utanför skolan* (pp. 87–106). Malmö: Gleerups.

- Limberg, L. & Sundin, O. (2006). Teaching information seeking: Relating information literacy education to theories of information behaviour. *Information Research*, 12(1). [Available at <http://www.informationr.net/ir/12-1/paper280.html>]
- Limberg, L. Sundin, O. & Talja, S. (2013). Three theoretical perspectives on information literacy. *Human IT: Journal for Information Technology Studies as a Human Science*, 11(2), 95–130.
- Lloyd, A. (2010). Framing information literacy as information practice: Site ontology and practice theory. *Journal of Documentation*, 66(2), 245–258.
- Mager, A. (2009). Mediated health: Sociotechnical practices of providing and using online health information. *New Media and Society*, 11(7), 1123–42.
- Martin, A. (2008). Digital literacy and the “digital society”. In C. Lankshear & M. Knobel (Eds.) *Digital literacies: Concepts, policies and practices*. (pp. 151–176). New York: Peter Lang.
- Ministry of Education (1994). *Läroplanerna för det obligatoriska skolväsendet och de frivilliga skolformerna*. Utbildningsdepartementet: Stockholm.
- Moselen, C. & Wang, L. (2014). Integrating information literacy into academic curricula: A professional development programme for librarians at the University of Auckland. *The Journal of Academic Librarianship*, 40, 116–123.
- The National Agency for Education (2011a). *Kommentarmaterial till kursplanen i samhällskunskap*. Stockholm: Skolverket.
- The National Agency for Education (2011b). *Kommentarmaterial till kursplanen i svenska*. Stockholm: Skolverket.
- The National Agency for Education (2013). *It-användning och it-kompetens i skolan*. Stockholm: Skolverket.
- The National Agency for Education (2014). *The Swedish National Agency for Education*. Stockholm: Skolverket.
- Samuelsson, U. (2014). *Digital (o)jämlighet? IKT-användning i skolan och elevers tekniska kapital*. Jönköping: Högskolan i Jönköping.
- SFS (2010:800). *Skollag*. Stockholm: Utbildningsdepartementet.
- SOU (2007). *Tydliga mål och kunskapskrav i grundskolan: Förslag till nytt mål- och uppföljningssystem*. Stockholm: Utbildningsdepartementet.
- Street, B. (1984). *Literacy in theory and practice*. Cambridge: Cambridge University Press.
- Sundin, O. & Francke, H. (2009). In search of credibility: Pupils' information practices in learning environments. *Information Research*, 14(4) paper 418. [Available at <http://InformationR.net/ir/14-4/paper418.html>]
- Sundin, O., Francke, H. & Limberg, L. (2011). Practicing information literacy in the classroom: Policies, instructions, and grading. *Dansk Biblioteksforskning: Tidskrift for informations- og kulturformidling*, 7, 7–17.
- Säljö, R. (2012). Literacy, digital literacy and epistemic practices: The co-evolution of hybrid minds and external memory systems. *Nordic Journal of Digital Literacy*, 7(1), 5–20.
- Sørensen, E. (2009). *The materiality of learning: Technology of knowledge in educational practice*. Cambridge: Cambridge University Press.
- Tuominen, K., Savolainen, R. & Talja, S. (2005). Information literacy as a sociotechnical practice. *Library Quarterly*, 75(3), 329–345.
- Unesco (2013). *Media and information literacy: Policy and strategy guidelines*.
- Utdanningsdirektoratet (2012). *Rammeverk for grunnleggende ferdigheter*. [Available http://www.udir.no/Upload/larerplaner/lareplangrupper/RAMMEVERK_grf_2012.pdf]
- Van Dijck, J. Search engines and the production of academic knowledge. *International Journal of Cultural Studies*, 13(6), 574–592.
- Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation*. Thousand Oaks: Sage.
- Young, M. (2013). Overcoming the crisis in curriculum theory: A knowledge-based approach. *Journal of Curriculum Studies*, 45(2), 101–118.