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INFORMATION LITERACY

IN THE UPPER SECONDARY SCHOOL

– A discussion paper

DANISH SCHOOL OF EDUCATION

AARHUS UNIVERSITY

Information Literacy in the Upper Secondary School

CONTENTS

PREFACE

We are pleased to be able to introduce the discussion paper *Information Literacy in the Upper Secondary School*. The paper is an expression of the collaboration between the National Library of Education at the Danish School of Education, Aarhus University, and the Royal School of Library and Information Science. The objective of the paper is to create a starting point for a debate on the concept of information literacy and its significance in the upper secondary school. The discussion paper forms part of a project, whose purpose it is to develop supplementary training courses for upper secondary school teachers and upper secondary school librarians.

The paper draws on literature searches and reading of national and international research and development work in relation to information literacy and related phenomena, such as digital education, digital literacy etc. In relation to the preliminary work, we would like to thank Elina Maslo and Vibeke Jartoft, the National Library of Education, for their efforts. The paper also draws on focus group interviews with upper secondary school teachers and librarians. In this connection, we would like to thank teachers and librarians from the upper secondary schools in Aurehøj, Greve, Haslev, Holstebro, Nærum and Svendborg and Svendborg Library for their participation and valuable contributions, just as we would like to thank Denmark's Electronic Research Library for funding the project. Without this financial support, neither the project nor the important dialogue with teachers and librarians in the upper secondary school would have existed.

Information literacy is a familiar phenomenon with roots back to the 1970s. However, the paper asks whether information literacy has taken on a different meaning today. In other words, the discussion paper prepares the ground for understanding our day and age as a time of change for the perception of information literacy: To what extent are the 1970s' definitions of and ideals for what it means to

be information literate being challenged? For instance, it was characteristic of some of these definitions that they more or less explicitly emphasised a number of *search qualifications*, applicable to all, while today, we speak more and more about the individual person's digital *search literacy*. Does it not make a world of difference whether you speak of information literacy in the upper secondary school on the basis of a qualifications approach instead of a literacy and learning approach? Let the debate begin.

Happy reading

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INTRODUCTION: INFORMATION LITERACY – DO WE NEED A NEW APPROACH?

Tomorrow's key skills and knowledge are not only a question of being able to read, write and do arithmetic. The Gutenberg era's basic skills are being supplemented and maybe even transformed into the digital society's skills. Here, it is a question of being able to communicate, be able to improve one's level via ICT literacy and solve problems through numeracy and understanding of models. All of these elements demand the ability to handle digital searches. Currently, this search competency can be summarised in a demand for information literacy and/or digital literacy in order to navigate in the endless offer of information found on the internet. Information literacy has even been called the 21st century's new key competency. In order to be literate, you must be able to search for, collect, structure and compare information – at different levels – with a view to converting information into knowledge. However, something would indicate that – across generations – we have not entered the 21st century's digital society with a sufficiently developed level of information literacy.

Although most people are able to search for information by googling, either we do not google well enough – or it is simply not enough to be able to google. In other words: Developing the fourth key competency to a satisfactory level constitutes a great task for the educational institutions – from primary schools over upper secondary schools to the higher educational programmes – in the digital society. And it is one thing that the task has not been resolved, it is another question whether the challenge over a number of years has been met incorrectly or not been met at all by the educational institutions. A number of international and national studies speak for themselves about the extent of the issue.

CULTURE'S CORNERSTONES AND THE SCHOOL'S LEARNING OBJECTIVES IN THE GUTENBERG ERA AND IN THE DIGITAL SOCIETY

Culture's cornerstones (from Plato to…)	The Gutenberg era's basic skills (RWA)	Culture-bearing general disciplines (H. Gardner)	The digital society's critical skills (I. Harel)	International identification of basic skills – the international consensus (The Six Key Skills or Cross Curricular Competencies)		Innovative fields in the school
The Good	Reading	History (*the Good*)	Exchange (*eXchange*)	Communication (*communication*)	Collaboration with others (*working with others*)	'Projects' (*collaboration*)
The Beautiful	Writing	Arts (*the Beautiful*)	Express (*eXpression*)	ICT literacy (*information technology*)	Improving own level (*improving own learning*)	'Aesthetics' (*individuality*)
The True	Arithmetic	Sciences (*the True*)	Explore (*eXploration*)	Numeracy (*application of numbers*)	Problem solving (*problem solving*)	'Internet' (*knowledge search*)

Figure 1: Do we take the digital society's requirements on basic skills seriously – or are we stuck in the Gutenberg era's concepts of basic skills?

Source: Johansen and Langager 2002: 43

GOOGLING IS NOT GOOD ENOUGH

In 2007, British Library published the report *Information behaviour of the researcher of the future. The Literature on young people and their information behaviour.* (Williams; Rowlands 2007) The report triggered worries, because the conclusion was that the young generation was at the same low level in relation to digital searching as generations born before the digital age. University College London's briefing paper (UCL 2008) also stresses that the Google generation (born after 1993) is speedy in their approach to the media in a society characterised by abundant information, but attention to the quality of information has not followed suit. For instance, young people are not aware of Google's limitations and the existence of academic, often library-funded, information sources such as databases, electronic journals etc. The British report therefore concluded that young people have *skill gaps* – and that these are unevenly distributed. One quarter of young people who have gained top marks, have received training and education in qualified use of IT for information search. The worst quarter content themselves with googling without any sense of the quality or credibility of the information. This has consequences. The good or bad habits are 'maintained' in the upper secondary school and follow the students into the higher educational programmes, where the best students are those who are competent in the selection, handling, evaluation and application of information.

From Germany, we find the same kind of story about a lack of development of information literacy. In 2006, an evaluation indicated that an entire generation of upper secondary school students possessed inadequate competencies in relation to assessing the quality of information searches and in relation to knowledge about library databases, electronic journals etc. In a survey conducted at the university in Regensburg, as many as 90 % of the students responded that they only search for answers to a search issue on Google. The authors of the evaluation drew attention – on a par with the study from British Library – to the schism of being IT literate but not information literate. This means that qualitative standards for searching, quality assessment, knowledge management etc. are lost in favour of a superficial and quick use of information media. (Hochholzer; Wolff 2006)

If we turn our attention to Denmark, the situation is assessed in a similar way. In 2000, a study of IT in the primary and lower secondary school showed that school principals assessed the pupils to be competent users of computers and the internet. However, it also showed that these skills to a high or some degree were acquired outside the school context. The PISA study from 2006 showed that this picture had not changed a lot: 90 % of the boys and 80 % of the girls use computers at home, while only 25 % of the boys and 17 % of the girls use computers at school. (Andersen; Egelund 2006) Maybe it is a main problem that teachers do not feel – or they are not – well enough equipped to use and teach more advanced use of IT in an academic context. A survey carried out by *De Lærerstuderendes Landskreds* (Danish Student Teachers' Association) and the Confederation of Danish Industries in 2006 showed that 70 % of student teachers do not feel or only feel to a small degree that their training equips them to use IT when teaching. (Asmussen 2006)

In 2009, the report *Digitale læringsressourcer i folkeskolen og de gymansiale ungdomsuddannelser* (Digital learning resources in the primary and lower secondary school and upper secondary educational programmes) was published. The report documents a gap between the knowledge society's requirements, the EU's educational political prioritisations and the schools' financial and pedagogical practice. For the same reason, the recommendation was to integrate digital literacy in end targets and academic orders. Additionally, general upgrading – and managerial attention – at Danish schools was recommended in order to convert the requirement on integration of digital media into qualified practice. (Drotner a.o. 2009)

If we take a closer look at the upper secondary school, the survey *Gymnasieelever og biblioteker* (Upper secondary school students and libraries) from 2007, designed by

Professor Niels Ole Pors, The Royal School of Library and Information Science, showed that among all types of upper secondary school students there was a clear preference for using Google in information search, see figure 2. (Pors 2007) However, Niels Ole Pors has also pointed out that Google and library resources actually support each other when it comes to students at higher educational programmes. The most diligent users of Google are the students who are most active in connection with loans and use of electronic library resources. As a whole, however, the use of Google is increasing as the absolute leader among search engines in competition with quality-assured databases.

GOOGLING IS GOOD ENOUGH FOR UPPER SECONDARY SCHOOL STUDENTS

"I prefer to make my own searches for information and literature by means of Google or other general search engines."

Responses distributed across upper secondary school type

	General	Business	Technical	Total
Disagree entirely	1 %	1 %	0	1 %
Mainly disagree	4 %	3 %	2 %	3 %
Neither agree nor disagree	16 %	16 %	11 %	15 %
Mainly agree	38 %	29 %	40 %	35 %
Agree entirely	42 %	50 %	47 %	46 %
Number of students	**468**	**354**	**135**	**957**

Figure 2: The vast majority of upper secondary school students either agree entirely or mainly agree that they prefer to search for information by means of Google.

Source: Pors 2007: 35

DIGITAL LAZINESS AND IGNORANCE?

With these stories in mind, it is fair to conclude that the alarm has sounded long since: Far too many have used simple Google searches alone far too long. In 2007, the digital think tank CIO Innovation Forum/Dansk-IT actually spoke of impending digital illiteracy, which had to be treated with the same level of seriousness and consequence, as we would deal with ordinary illiteracy in the form of poor reading skills. (Lindholm 2008)

Maybe, as matters stand, one might speak of a competency backlog for all parties – right from primary school pupils and upper secondary school students, via their teachers to students and teachers at institutions of higher education. Similarly, we can conclude that educational institutions, teachers, pupils and students as a whole are slow to implement the use of IT. Associate Professor Søren Langager from the Danish University of Education, Aarhus University, finds that on the one hand, the impression is that many resources have been spent on implementing ICT in the schools – a reasonable amount of hardware is available. On the other hand, the impression is also that it is taking a surprisingly long time to implement it. (Langager 2009) Why?

Is it because teachers and pupils, instructors and students are too lazy or ignorant? The laziness explanation is that people use the information that requires the least effort to retrieve first. And the Google principle is often equated with the principle of least effort. The ignorance explanation is that we have not taken the new digital basic skill sufficiently seriously. This means that the entire educational system – naïvely and ignorantly – has believed that the mere presence and use of IT in itself increased the quality of its use. We know now that this is not the case. We also know that not everybody becomes ignorant or lazy due to the presence of IT. It is an equally great myth that IT in itself is negative, as it is a myth that IT is entirely a positive thing. And speaking of myths, it is also a myth that all young people are particularly IT-knowledgeable. – They may be computer literate, but they are not information literate. Especially not in the sense that some teachers, instructors and librarians would like them to be.

Maybe there is another way to explain the situation – a way whose starting point is not that some are lazy or ignorant, but which rather takes its starting point in various pedagogical-didactic approaches to understanding teaching and learning in relation to information literacy. The consequence of such an alternative starting point is that you immediately see something other than laziness and ignorance – i.e. different and conflicting perceptions of teaching and learning in relation to information literacy. It

is such a new understanding – a new view of information literacy – that is put forward in this paper's *Part 1*. In the paper's *Part 2*, we seek to make use of this understanding in relation to the situation in the Danish upper secondary school.

Pretext for inaction: Google is not good enough! Danish and foreign studies show concordantly that the so-called Google generation does not have adequate IT competencies. On the one hand, a relatively large amount of money has been spent on hardware. On the other hand, it has taken a relatively long time to implement this at a high level of quality. Why?

- Does the educational system have a too naïve idea that the mere presence of IT will enable teachers and students to use it in an educated way? – Have we had a naïve idea that IT technology was going to change pedagogy?

- Does the educational system – from primary school via upper secondary school to the institutions of higher education – permit an unqualified and lazy use of this media on the part of both teachers and students? And what is the consequence?

PART 1/
NEW APPROACH TO INFORMATION LITERACY

What are we referring to when we talk about information literacy? Are we talking about competencies, or are we talking about qualifications – and what is the difference? Do we at times talk about education or requirements on knowledge when we talk about information literacy? Yes, is our answer, and therefore, the ambition here is to supply a contribution that stresses differences and conflicts between these different ways of talking about information literacy. We make the different approaches to information literacy distinctive and clear by using an orientation map. The purpose is to make it simpler to orientate oneself in relation to the different approaches that surround the issue of information literacy. For the same reason, ideally, it should also become correspondingly simpler to find solutions to the issue of how one can work pedagogically-didactically with a view to raising the information literacy level, e.g. in the Danish upper secondary school.

In brief, the map is not a representation of reality. This kind of map is rather a mindscape, which improves the possibilities of orientating oneself in accordance with the main forces and conflicts that are in play in a specific social landscape.

FOUR WAYS OF RELATING TO INFORMATION LITERACY

Kapacitet	Capacity
Læring	Learning
Ydelse	Performance
Undervisning	Teaching
Dannelse	Education
Viden	Knowledge
Kompetence	Competency
Kvalifikationer	Qualifications

The map is a slightly revised version of a map taken from Professor Lars-Henrik Schmidt's book *Om Respekten* (About Respect). (Schmidt 2005) It is based around two axes, which each constitutes a continuum. This means that for instance, we ask whether the teacher is *more or less* teaching or learning orientated – and not whether he/she is *either* teaching orientated *or* learning orientated. In other words, one axis is a learning-teaching axis, and the other axis is a capacity-performance axis, whose position in relation to the first axis substantiates and determines the relation between learning and teaching.

The map is designed so that within the individual field, it establishes the clear idea of information literacy. This means that similarly, there are specific differences and conflicts between the fields. The consequence is that you may run into the case where a competency perspective seeks to 'spread out' and make sense of a qualification perspective, which has its roots in a competency horizon and vice versa. Or reversely, that a qualification perspective is articulated in competency terms.

TWO APPROACHES TO INFORMATION LITERACY

The teaching-learning axis is about the teacher's / the librarian's relationship to his/her teaching and the pupil's relationship to his/her learning, respectively. The capacity-performance axis is about the relationship between a teacher's or a librarian's teaching and the learning person's capacity to convert this teaching into a performance. The two axes create four fields, in which the two fields to the right (knowledge and qualifications) establish what we refer to as a whole as a teaching discourse, and the two fields to the left (self-education and information literacy) establish what we call a learning discourse. This distinction has decisive consequences for the way in which information literacy is defined.

The teaching discourse defines information literacy as an indication that a person is able to search for and re-find information in a chosen search system and furthermore has the ability to evaluate the search result in relation to a outlined search strategy. In other words, the term 'literacy' actually means 'qualifications' in which the individual is trained and against which he/she is measured – e.g. measuring the degree to which the individual meets the requirements posed by the educational institution represented by the teacher.

The learning discourse defines information as that which the learning person chooses to categorise as information. It is the learner's work to create meaning and convert information into knowledge that forms the basis for the development of information literacy. In other words, information literacy is understood as a competency that is linked to the individual's work with personal meaning and knowledge formation. Furthermore, literacy in the learning discourse is often understood as the learner's ability to relate knowledge to the context from which it originates, and the ability to transfer knowledge from one context to another – i.e. make use of a competency in several related contexts.

The distinction between a teaching discourse and a learning discourse can hardly be overrated, as **firstly**, it is included as a central part of the map that shows the different ways of perceiving – articulating – information literacy and these ways' mutual differences and at times mutual power struggles and conflicts. Therefore, within the actual teaching discourse, there may be conflicts. For instance, in his book *Om Respekten* (About Respect), Professor Lars-Henrik Schmidt, the Danish School of Education, Aarhus University, explains that as a pipe fitter you may have knowledge of how to fit old-fashioned ceramic pipes without being qualified to fit modern plastic pipes. (Schmidt 2005) Similarly, as a teacher you may have certain knowledge about where to retrieve information in a traditionally delimited archive and file system, yet lack the qualifications needed to search for information in digital search contexts. Within a learning discourse, you may also be an educated person who only reads entire books and classics, and who is therefore unable to deliver performances that require the competency to browse and combine fragments from old and new texts into a new, original context. However, the main point is that the relation between knowledge and qualifications is usually not a relation on a 1:1 scale. This is what the two Swedish researchers Limberg and Folkesson, for example, experienced when in the period 2001-2003, they followed Swedish upper secondary school teachers and librarians' teaching on information literacy. (Limberg; Folkesson 2006) Here, they documented a discrepancy between what is taught, on the one hand, and the assessment of the quality of the students' information search, on the other hand. The search qualifications in the described teaching were not developed in close interaction with the students' abilities to assess, process and apply information in the assignment work. In other words, information search was detached from – and too limited in relation to – the qualifications that were necessary in order to deliver a qualitative assignment response. The concrete teaching needs were related to developing the students' text-reading qualifications, source criticism skills, as well as writing and text construction qualifications if the students were to deliver the expected performance.

Often, when discussing information literacy, these differences between e.g. knowledge and qualifications are not grasped completely, and the differences between a learning discourse and a teaching discourse are grasped to an even lesser extent. Instead, these distinctions disappear in bullet point lists of what the individual person must be capable of in order to be information literate or educated. Thus, it becomes more difficult to understand that there are conflicts within the concept, just as it becomes equally difficult to act solution-oriented in relation to the development of information literacy in teaching contexts.

Secondly, the distinction between a teaching discourse and a learning discourse also implies a thesis about an offset. It is the individual's learning that takes centre stage, not the teacher's or the librarian's teaching. This means that the teacher's conventional teaching with its focus on teacher control, development of qualifications and common academic objectives loses authority. Instead – thus goes the thesis – a learning discourse is taking over; a discourse that places emphasis on the students' use of ICT as a resource in information search, own learning, project collaboration etc. Maybe it is generally becoming increasingly difficult to talk about the teacher as a form teacher and educator – also in relation to students' use of digital media and search processes in their learning processes. Michael Paulsen and Jesper Tække, for instance, mention in their article *Om den uformelle (mis)brug af medier i det formelle uddannelsessystem* (The informal (mis)use of media in the formal educational system) that the teacher's instruction in new learning media may not be in harmony with the students' learning by means of these media. (Paulsen; Tække 2009) I.e. a disconnection of teaching from learning takes place. The point is as follows: It may well be that the teacher does a great job of teaching, but the students do not have the time for this. They are busy with their own learning project – or, at any rate, busy with their own stuff. Teaching takes place and learning takes place, but often not according to the teacher's intentions. The student becomes his/her own instructor, ignoring the teacher's instruction. Is this a scare story or an ideal – and to whom?

Does the learning discourse legitimise inequality? On the one hand, the concept of information literacy has roots back to the 1970s and later on, to a conventional teaching discourse in which teachers and librarians trained and evaluated individuals in common search qualifications. On the other hand, the learning discourse implies that information literacy is linked to the individual's work with a personal meaning and knowledge formation. What are the consequences of this?

- Does a disconnection take place between the teacher's instruction and the students' learning by means of new media?

- Does this disconnection explain why the use of new media is not of a higher quality than it is? Or does this disconnection mean that increasingly, it is up to the individual student to develop a more or less competent information search?

- Does the learning discourse represent a legitimisation of inequality – now 'just' in relation to mastering information literacy?

DEFINITIONS OF INFORMATION LITERACY – HAVE THEY MOVED WITH THE TIMES?

American Library Association (ALA) – 1989

Since the 1970s and the emergence of the electronic media, a concept of information literacy has circulated in a number of variants in the business and library world. Today, the concept 'information literacy' refers to the American library tradition. Even today, the most frequently quoted and widely accepted definition of information literacy stems from the American Library Association (ALA) back in 1989. The definition indicates that you should be able to locate, evaluate and use information.

To be information literate, a person must be able to recognize, when information is needed and have the ability to locate, evaluate, and use effectively the needed information. (ALA 1989)

In this connection, the *American Library Association. Presidential Committee on Information Literacy. Final Report* describes how we live in an 'Information Age' where it is important that everybody has access to information. In this connection, it is important to notice that ALA's definition of information literacy was phrased at a time when the amount of digital information had not yet exploded, and nor had the access to digital information. What happened was that groups of students and pupils, but also minorities and weak groups in society as a whole needed better access to information in general, including to the internet. In other words, electronic resources did not dominate the picture in the same way as they do today. Access to information from "online databases, videotapes, government documents and journals" is only mentioned once in the report. The report also mentions an ambition about "the free flow of information". The ambition is to ensure that citizens do not form their opinions based on TV and that they do not simply accept "the landlord's expert opinion," but become capable of forming their own ideas by means of access to information. The definition also originates from a desire to create – via equal and increased information access – a sort of authoritative citizens who can manage themselves in a democratic society.

Christine Susan Bruce – 1997

Towards the end of the 1990s, the Australian researcher Christine Susan Bruce influenced the international discussion about information literacy with her empirical study *The Seven Faces of Information Literacy*. (Bruce 1997; Bruce 1999) The preoccupation with access to information had shifted to a focus on how the rapidly increasing amount of information was to be handled. Christine

Susan Bruce concluded that university students were too inefficient at handling the information at their disposal, and she recommended that libraries should launch and design teaching and guidance programmes for students in order to increase their information literacy. In this context, she pointed out that previous attempts at defining information literacy had lacked detailing: How can you design programmes for university students or staff when you do not know whether the issue is "information literacy, information skills, library skills or bibliographic instruction," she asked.

Bruce identified seven different ways of experiencing information literacy related to different types of work. The seven ways should be seen as representation forms of the overall phenomenon 'information literacy'.

- To be able to use IT in information search and communication

- To be able to find information in relevant information sources

- To be able to complete a process, including being able to apply information in problem solving and decision making

- To be able to re-find, check and structure information and create information connections and wholes

- To be able to develop a personal knowledge base within a new field of interest

- To be able to use knowledge in such a way that new angles, approaches, perceptions and solutions are created, i.e. with an emphasis on the innovative and creative

- To be able to use information for the benefit of others, i.e. connecting knowledge with wisdom, values and ethics. (Bruce 1999)

UNESCO – 2008

UNESCO has elaborated definitions for many different types of literacy – including information literacy. The definition does not contribute anything new. It maintains the approach that we know from the 1970s by placing emphasis on being able to find, evaluate and use information. In UNESCO's *Framework Paper* from 2008, 'Information Literacy' is defined as the individual person's ability to:

- *Recognize their information needs*

- *Locate and evaluate the quality of information*

- *Store and retrieve information*

- *Make effective and ethical use of information*

- *Apply information to create and communicate knowledge.*
  (Catts; Lau 2008)

PART 2/
INFORMATION LITERACY IN THE UPPER SECONDARY SCHOOL

The paper's *Part 2* first focuses on tracing information literacy as a part of the study competency in the ordinary upper secondary school. On the one hand, it is clear that information literacy is a part of the everyday life of the upper secondary school. Teachers and students' use of network-based media to search for information is a part of everyday practice. On the other hand, it is also clear that official requirements – the Executive Order on the Upper Secondary School and guidelines for the same – state that information literacy should be a part of the study competency. However, if you take a look at studies about everyday practices in the upper secondary school, you get the impression that the information literacy that dominates everyday life does not always have a particularly strong – or indeed particularly desirable – connection to the official requirements.

The paper's *Part 2* first takes a closer look at the formal requirements on study competency with a view to tracing how and where the requirements on information literacy are to be found in official regulations. Then we examine how different learning approaches and different teaching approaches facilitate or limit a constructive – learning – encounter between students and teachers about how to acquire qualitative competencies in information search.

PURSUIT OF THE FORMAL REQUIREMENTS ON INFORMATION LITERACY IN THE UPPER SECONDARY SCHOOL

What are the requirements on students' knowledge level and/or qualifications when it comes to study competency and in particular, information literacy in the upper secondary school? Is it at all possible to find such requirements – or are they conspicuous by their absence? The answer is found in the *STX-bekendtgørelse* (Executive Order on the Upper Secondary School Leaving Examination), which describes the educational programme's purpose, structure, content and curricula. The guidelines to the Executive Order and the individual subjects' study guides also constitute a basis for finding an answer.

If you read the Executive Order, you find that the education leading to the upper secondary school leaving examination in the ordinary upper secondary school is based around 24 possible subjects and a number of compulsory courses. The structure consists of an initial *foundational course* lasting about six months, which is followed by a *special study area course* lasting the rest of the three years' programme. The foundational course consists of a number of subjects and three special courses, i.e.

- General linguistic comprehension
- Natural science foundational course, and
- General study preparation, which is referred to as *AT*.

The special study area course includes a number of subjects and blocks as well as a special study area project, whose overall objective is for the student to acquire study competency.

The foundational course's *general study preparation (AT)* is a collaboration between subjects within and across the three main areas of the upper secondary school: science, humanities and social science. This is to ensure that the student gains insight into characteristic aspects of the upper secondary school's main areas and subjects and to make it clear to the students that scholarly character in a wide sense is based on continual discussion and argumentation. The objective of general study preparation is to challenge students' creative and innovative abilities and their critical sense in the use of academic knowledge through academic collaboration. Furthermore, it is to strengthen their ability to relate to the surrounding world and their own development in a reflective and responsible manner, based on a wide academic and methodological foundation and in a future-oriented perspective. Furthermore, general study preparation is to strengthen students' ability to compare knowledge and methods from different subjects and contribute to enabling them to make well-founded choices of subjects in the upper secondary school and in relation to their choice of further education. (The Executive Order on the Upper Secondary School Leaving Examination, Appendix 9)

In the general study preparation course, students practice and acquire good study competencies. In the course of the three years at upper secondary school, students work in a number of preparatory courses, and the idea is that students should deliberately and systematically work with different study methods and work forms throughout the course. The guidelines (Ministry of Education 2008) include an

inspiration list as to how the students' acquisition of study competencies can be achieved over the three-year upper secondary school course.

The competencies recommended for students to acquire during the first year of studies include:
- Being able to search – with guidance – for information on the internet.
- Being able to search – with guidance – for information at the library.

Among the competencies for the second year, the Ministry of Education's guidelines mention that the student:
- Should be able to conduct material and information searches independently.

In continuation of this, the competencies for the third year include that the student:
- Should be able to delimit and define a subject.
- Should be able to prepare – with guidance – a problem statement.
- Should be able to respond to a problem statement, and not least
- Should be able to reflect on his/her own learning process.

In the *special study area project*, which is elaborated during the third year, students work with a written assignment with a problem statement based on two or three subjects. The work spans two consecutive weeks. The assessment of the paper is an academic overall assessment in relation to the academic objectives of the subjects that are included in the special study area project. (The Executive Order on the Upper Secondary School Leaving Examination, Appendix 7) In the assessment, emphasis is placed on whether, for instance, the paper is consistent with the assignment statement, but also on the examinee's selection, inclusion, processing, assessment and perspectivisation of relevant academic material.

What does this description of the *AT* course and the special study area project tell us about the requirements on the connection between knowledge levels and search qualifications? It tells us that the *AT* course is connected to a – guiding – ambition for ever increasing information literacy over the three years, including that students should develop their creative, innovative and critical skills in relation to academic knowledge through interdisciplinary work.

With reference to the Upper Secondary School Act, among other things, Lars Qvortrup, Dean at the Danish School of Education, Aarhus University, has attempted to clarify the connection between knowledge levels and qualification and competency levels by outlining a taxonomy of knowledge, qualification and competency forms; see figure 4.

FOUR FORMS OF KNOWLEDGE

Knowledge forms	Question type	Various requirements on work with information
Factual knowledge	Who, what, where and when?	Trivia knowledge via googling: Information qualified
Situative knowledge	How?	Problem solving and methodologically substantiated search: Information literacy
Systemic knowledge	Why?	Theoretically substantiated knowledge: Information creative
Knowledge culture	Contingent on what?	Information search culture

Figure 4: Are Danish upper secondary school students capable of working with information at increasingly demanding levels?

Source: Lars Qvortrup, PowerPoint 2008

The four knowledge forms move progressively from factual knowledge over situative knowledge and on to systemic knowledge and finally, to the overall knowledge culture. To Lars Qvortrup, knowledge is a source for transforming uncertainty into certainty, but it is also a source for giving uncertainty form. This means to maintain uncertainty as uncertainty, but making it manageable, e.g. by having the ability to identify news, changes etc. and to develop strategies for how to deal with them. (Qvortrup 2004) In order to work with factual knowledge as the first step in the progression, information qualifications are required, and in order to work with situative knowledge at the next level, information literacy is required. The latter presupposes going via the former. If you move on to the third level, the systemic knowledge, information creativity is a prerequisite. The fourth knowledge form, knowledge culture, is knowledge about the prerequisites for knowledge systematics, represented by the entire cultural system. The central point in listing these knowledge forms is that they are connected to requirements on progression in the way people work with information. When upper secondary school students acquire *factual knowledge*, this may mean that e.g. in the subject of Danish, they know various literary authors from different periods; in maths, they apply certain formulas, or in general, for all subjects, they carry out searches, know some e-resources, know the structure of written assignments etc. In addition, they may have *situative knowledge*, which is demonstrated by their ability, for instance, to relate the authorships mentioned to central events in the relevant historical periods. This competency may also be evident by the students' ability to handle unexpected information and issues in new assignment frameworks and within altered work forms. At the third level, *systemic knowledge*, students are able to raise themselves from an interdisciplinary problem statement, assignment type and work form to a different level of abstraction, where they are able to reflect on how the issue they are working with will function in

a different perspective. In other words, they are able to reflect on the prerequisites that are inherent in the way in which they have worked with information so far, and assess what impact the altered conditions have on the work ahead. Finally, they have to be a part of the *knowledge culture*, i.e. they must relate to the upper secondary school and educational culture of which they are a part.

Taking Lars Qvortrup's taxonomy and correlation between knowledge levels and the formal requirements on qualifications and competencies as a starting point, the question is, firstly, whether teachers believe that they are able to reach increasingly higher knowledge levels with the students. In the focus group interviews conducted, the consistent answer was that students use Google, but this is not the problem. The problem is that they never move on from there – in brief, what is lacking is progression in the students' way of working with knowledge and information. Secondly, the question is whether the formal requirements on information literacy as a part of the study competency are sufficiently clear – not least across the different subjects of the upper secondary school.

Many of the course descriptions for *the individual subjects* mention 'information search', i.e. in connection with what IT is to be used for in teaching. In the subject social studies, it is mentioned that instructions in "the use of focused search strategies" must be given during the courses. (The Executive Order on the Upper Secondary School Leaving Examination, Appendix 49) Other course descriptions use different terminology. In relation to the subject drama, it is mentioned that students "must collect, process and assess information from different sources, including the internet". (Appendix 16) In physics, students are to use IT-based tools, e.g. for "collection and processing of academic information from the internet". (Appendix 23) Requirements on source criticism are also mentioned in some of the course descriptions. In relation to the subject biology, it is stated that the subject's objectives are reached, among other things, via "the students' experience with critical information and literature search", and one of the academic objectives is that students must be able to "seek out and assess information about the environment, health, medicine and biotechnology". (Appendix 12) For the subject history, one of the academic objectives is that students should be able to "relate to examples of use of the past in a methodology-critical documenting manner". (Appendix 27) Finally, in connection with the subject social studies, the course description states that instructions should be given in "the assessment of the reliability of information". (Appendix 49)

Listing these excerpts from the course descriptions serves to illustrate that each subject has its own specific requirements on information literacy, including

requirements on the use of IT. However, with this in mind, one might question whether a sufficiently interdisciplinary ambition about progression in the work with knowledge exists – or whether study competency becomes too atomised by being defined by subject. Conversely, you might ask whether the subjects – regardless of which they are – need to specify their contribution to a competency. Presuming that they do, the question remains whether they are to make this specification in relation to an overall and strong ambition on the part of the upper secondary school – e.g. in the form of interdisciplinary key qualifications and competencies, as mentioned by Lars Qvortrup.

Does the upper secondary school have a sufficiently strong and unifying ambition for information literacy? What are the requirements on students' knowledge level and/or qualifications when it comes to study competency and in particular, information literacy in the upper secondary school? The immediate answers and questions to be debated are as follows:

On the one hand, recommended requirements on progression in the approach to information and knowledge exist in relation to the upper secondary school's study preparation course. On the other hand, these requirements are 'weak' – i.e. recommendations only – and there is a risk that the requirements will be watered down when they are specified in relation to the different subjects. In other words, is there a need for an overall, more clear and binding official objective for information literacy in the upper secondary school, not least stated objectives for digital literacy and digital education?

LEARNING AND TEACHING APPROACHES TO INFORMATION LITERACY IN THE UPPER SECONDARY SCHOOL

It is possible to distinguish between a conventional and a new learning paradigm. The conventional paradigm involves the use of digital networks in a conventional teaching practice with teacher control, development of skills and common academic objectives. The new paradigm, on the other hand, is about the teacher's and the librarian's teaching or maybe rather about guidance that facilitates the student's own learning, project work, other collaboration forms, possibility of varying individual learning rates and goals, as well as new digital paths towards knowledge and information search. (Langager 2009) In this section, we start by focusing on the students' learning – the learning discourse. This means that based on analyses of a case, we list questions in relation to the students' relationship to information search as a part of their learning approach(es). We then move on to look at the teaching discourse. In a similar way, we list questions based on analyses of two cases, which deal with different teacher types' relation to teaching or guiding students in information search.

The starting point for the analyses is an ideal about the education as well as the process as a product. For example, in her book *Digital dannelse* (Digital Education), Lotte Nyboe understands the concept of digital education as a cultural competency connected to the current technological development and digital media reality. Thus, Lotte Nyboe is preoccupied by learning processes that take place through the use of digital media, but also by processes that take place in interaction with or as a challenge to these. (Nyboe 2009) Now, what is the purpose of these processes – what do they lead to?

In 2008, Lars Qvortrup, Dean at the Danish School of Education, Aarhus University, elaborated an overview of the educational ideals by which a modern person can orientate himself/herself. It is about the role as private person, as a public person and as a working person marked by life-long learning. These are listed in figure 5.

THE DIGITAL SOCIETY'S EDUCATIONAL IDEALS

The person's roles	The information literate student's roles	Media used
The private person	Private media user	Blogging, texting, games, social networks
The public person	Authoritative media citizen	Wikipedia, surfing, blogging, networks
The learning person engaged in knowledge work	Life-long learning and IT-based activity	Digital portfolio, web production etc.

Figure 5: Are Danish upper secondary school students educated as public and learning people, or is the current use of digital media in the school personal?

Source: Edited version of Qvortrup, PowerPoint 2008

In the preamble to the Executive Order on the Upper Secondary School Leaving Examination, you find justification for the upper secondary school to educate and train the student both as a citizen and as a learning person. In the Executive Order, the concept of the learning person is to do with the student learning to be study literate, while the role as the public person can also be traced in a comment about the student achieving the necessary prerequisites to participate actively in a democratic society. But what about the private person? All things being equal, this is not really the business of the school as a public institution. And yet – the world is probably not divided in such sharp terms, we are probably not educated like that today. This may be where some of the difficulties in the relationship between a conventional teaching

discourse and a new learning paradigm are born. We do not refer so much to the division into private and public as to what is personal and non-personal or – in a teaching context – when the use of digital media is personal or academic. In their article *Om den uformelle mis(brug) af medier i det formelle uddannelsessystem* (The informal (mis)use of media in the formal educational system), Michael Paulsen and Jesper Tække describe how students in an upper secondary school class, for instance, use Messenger for academic and non-academic purposes, to connect to and disconnect from the teaching that takes place in the classroom. (Paulsen; Tække 2009) The main question is which correlation – or lack of the same – there is between the teachers' teaching discourse and the students' learning discourse.

Below, we use selected cases to focus on connections and disconnections, conflicts and dilemmas between the learning discourse and the teaching discourse. The basis for the analysis is three cases from different upper secondary schools. The first case that we make use of, *Løgneren* (The Liar), stems from a project about new teacher's roles following the 2005 reform at the University of Southern Denmark, as described by Erik Kruse Sørensen and Michael Paulsen in the report *Ret og gyldighed i gymnasiet* (Rights and Validity in the Upper Secondary School). (Zeuner a.o. 2010) It takes its starting point in a learning discourse, i.e. in the students' differing relations to their learning, including their differing connections or lack of the same to the teaching discourse. Subsequently, we base our analysis on several aspects of a teaching discourse by means of the cases *Middelalderprojektet* (The Middle Ages Project) and *Saltprojektet* (The Salt Project), which stem from the project *Det refleksive læringsmiljø* (The Reflective Learning Environment), which took place from 2002 to 2005 as a collaboration between Otterup Library and Nordfyn Upper Secondary School. (Larsen 2005) Combined, the two cases illustrate different teacher types' relationship to their teaching and the consequences thereof in relation to the students' possibilities of connecting themselves to this discourse as learning individuals.

THE LEARNERS: COMPETENT INDIVIDUALS WITHOUT GENERAL EDUCATION?

As mentioned, the first case is called *Løgneren* (The Liar). It deals with the solving of an analysis exercise related to the novel *Løgneren* by Martin A. Hansen. This is done in different ways, and the differences are related to the approaches chosen by three groupings of social and academic character. The groups in question are 'the over-achieving girls', 'the clever IT boys' and 'the party girls'. It is common to the first two groups that they achieve relatively high marks, but they are radically different from each other in the way they structure their abilities in order to deliver a

performance at top level – measured in the marks received. However, the groups of girls are also divided in relation to whether they identify themselves with the school's academic objectives or with the youth culture to which they are going to belong while at the school. The group of over-achieving girls has deliberately chosen not to take a computer to school. They find that IT distracts their attention from the academic, but they use the school's computer room during breaks – e.g. for entering Facebook. The party girls, on the other hand, actively use computers during classes, but for non-academic purposes, disconnecting themselves both from the teaching and from the learning that the teaching might be prompting. They are online on Facebook throughout the day, check websites to keep updated on fashion, visit YouTube etc. The IT boys also use computers actively, but partly to support and develop alternative learning processes and partly for non-academic purposes such as for playing games among themselves. (Zeuner a.o. 2010)

What are the consequences of these different 'student attitudes' in relation to solving the analysis exercise about the novel *Løgneren*? The IT boys conduct a 'cost-benefit analysis', which firstly is aimed at spending as little time on the exercise as possible – including not reading the actual novel. Secondly, they are able to deliver the actual performance – honouring the academic requirements and achieving top marks. This is how they set to work: First, a trip to the library, where they check for material about the novel. Second, they watch the film and download papers from *Studieportalen* (the Danish Study Portal). Then they gather all the information they have found in a text where they avoid direct copy-pasting. Finally, they add quotes from the novel in order to make the paper as a whole appear credible. And they succeed – they get marks on a par with the over-achieving girls. According to the boys themselves, they are not able to read and analyse a novel such as *Løgneren*. In other words, without IT, they would not be able to achieve the same marks. They express that they do not feel they are missing out on anything by not actually reading the book. On the contrary, they describe that the work develops their ability to search for and assess information in general, and that they "get out and about and experience other academic expressions and some other academic angles in the media" that they use. The over-achieving girls express that they are not able to create a paper in the way the IT boys do it, but that instead, their focus is on in-depth studies.

What does the case say about the learning discourse – the discourse about the students' own approach – when it comes to information literacy in relation to the concrete task of writing a paper based on the analysis of a novel? It tells us that assessed from the output – the completed paper – the teacher is unable to distinguish between the IT boys' quick and superficial competencies and the over-achieving girls' slow and deep qualifications. Both groupings achieve the same high mark, 10.

However, it also tells us that the IT boys' competency and performance orientation disconnects a knowledge and general education dimension, which negatively phrased lacks 'academic immersion' and is an expression of 'cheating'. The boys do not immerse themselves in entire novels, and they cheat from the point of view that you should not creatively – albeit with digital ingenuity – reuse other people's papers. Conversely, the over-achieving girls connect to the teacher's prescribed teaching, knowledge and qualification discourse. This means that they are both process and product orientated according to the teacher's directions. These different positions are inserted into figure 6.

IT BOYS AND OVER-ACHIEVING GIRLS POSITIONED IN ORIENTATION MAP OF INFORMATION LITERACY

Kapacitet	Capacity
Læring	Learning
Ydelse	Performance
Undervisning	Teaching
Alment dannede stræberpiger! Er it-drengene udannede?	Generally educated over-achieving girls Are the IT boys uneducated?
It-drengene er kompetente	The IT boys are literate
Kvalificerede stræberpiger	Qualified over-achieving girls
Vidende stræberpiger	Knowledgeable over-achieving girls

Figure 6

These considerations are related to results from a Swedish study on information behaviour among upper secondary school students from 2009, conducted by Olof Sundin and Helen Francke. (Sundin a.o. 2009) The study is about a Swedish upper secondary school class, who are followed over a period of six weeks. The study's main question was whether the use of web 2.0 influences the way in which students assess the credibility of information sources. The result was that many of the students in the class in question used a conventional way of assessing the credibility of information, although they were actually quite familiar with other digital media's alternative types of publication basis. The students were primarily focused on doing what they felt the teacher wanted them to. The study also indicates that a time factor may influence the students' choice – they seem to give priority to the least time-consuming path to finding a solution to the assignments they are set. Thus, the

Swedish study indicates that the teacher still has authority with the students in relation to the credibility of information, but also that a time factor may make the students orientate themselves according to the teacher's performance requirements and less to the teacher's process requirements.

PRODUCT ABOVE PROCESS? Modern upper secondary school work – like a lot of work in general – is done under pressure of time. What are the consequences of this in relation to students' view of requirements on information search processes? And who are the most information-creative? On the one hand, we have the over-achieving girls who follow the teacher's instructions both in terms of the information search process (e.g. by reading entire books) and in terms of converting this into a paper. On the other hand, we have the IT boys who are capable of producing a product, an output that meets the teacher's requirements on the product – but not the requirements on the process. Who are most independent, competent and information creative – the over-achieving girls or the IT boys – in relation to the 2010 requirements on information literacy?

TEACHERS: THE QUALIFIED CLASS OR THE COMPETENT STUDENT?

While the first case took its starting point in the student's approach to their learning, the next two cases – the Middle Ages and Salt projects – are based on teachers' different approaches to their teaching with a particular view to identifying the status and character that information search gains in this context. Both teacher cases are taken from the project *Det refleksive læringsmiljø* (The Reflective Learning Environment). The project started in 2002 as a test of the consequences of the coming upper secondary school reform. The overall purpose was that together, Otterup Library and Nordfyn Upper Secondary School were to create a learning environment for the School's students, which supported the development of study competencies. The project focused on developing study competencies – including information literacy – through reflection between students, teachers and the project librarian who was employed in the project.

Case 1: The Middle Ages project

As a part of the general study preparation, two teachers – one teacher of Danish and one teacher of history – work together on a three-day interdisciplinary project on the Middle Ages in the first academic year. The teachers have chosen six subjects, which are assigned to the students by lot. The students prepare for the project by reading two texts, and in the course of the project, they must find at least another two texts

that are central in relation to their subject. The texts are analysed on the basis of the conventions of the Danish and history subjects, and students present the results to the class in the form of PowerPoint presentations. Opponent groups are designated for the presentations. The project librarian has taught the students basic search techniques, how to conduct information search on the internet, use of handbooks and quality assessment. Teaching takes place in relation to the students' concrete work with the subjects. The project librarian is involved in the project as a colleague and sparring partner for the teachers. Together, they have selected relevant websites and handbooks. The librarian participates actively during the students' presentations by asking about the students' information search process.

How do the teachers assess this project? The teachers' evaluation – as well as the students' evaluation – is that the project is a break with the ordinary classroom teaching, where the individual student can get away with hiding among the other students. Similarly, it is a break with the reproduction of knowledge that is a continuation of the ordinary teaching. One of the teachers thinks that there is a pedagogical point in the fact that the students – on a par with modern knowledge workers – only have limited time to acquaint themselves with an unknown topic by means of information search. It is mentioned, however, that teachers had texts at the ready, but the idea was that the students were to find the material. Among other things, the students discovered that handbooks were easier to deal with than internet sites. (For a detailed description of the case, see Larsen 2005.)

Case 2: The Salt project

The second case deals with a natural science foundational course – a three-day project – once again from Otterup Upper Secondary School. The project was conducted in the first academic year in the subjects of physics, chemistry and geography and was on the topic of salt. The students had worked independently in preparation for the project. For the project, the students were divided into nine groups, which were each given (the same) questions within each subject. It was decided by lot which three groups were to present answers to the class by means of PowerPoint presentations. However, this teacher group assesses the project's value completely differently to the teachers related to the Middle Ages project.

The teachers assess the project based on its contribution to the normal classroom teaching in their respective subjects. On this background, they are not satisfied with the academic insight the students had achieved judging from the students' PowerPoint presentations, which the teachers assessed negatively, as e.g. the students did not use academically correct terminology during their presentations. In their presentations, students were supposed to answer questions within the three subjects – not tie the subjects together on the topic of salt. One of the teachers expressed that the project's purpose was to stake on knowledge about "the core material of the subjects". The teachers' disappointment with the students' PowerPoint presentations corresponds quite well with the teachers' expectations – or lack of the same – to the students' abilities as regards information search. Firstly, the teachers express that information search is not necessary in relation to the subjects' core, but that it may be useful for perspectivisation. Secondly, the disappointment is related to the fact that the teachers consider themselves sources for the relevant and interesting knowledge – i.e. the knowledge that the teachers doubt that the students and the librarian will be able to find – and sort through. (For a detailed description of the case, see Larsen 2005.)

What do the two cases say about the teachers groups' different relations to their teaching, including the significance of teaching on information search? The last case tells us that one teachers group pays tribute to a conventional learning paradigm – where, to put it bluntly, they know what is worth knowing and where the students can find this – and not some other – knowledge. In this sense, these teachers dismiss the potential knowledge and information explosion with reference to the core material of their respective subjects and themselves as vital sources who can determine what this knowledge core consists of. For the same reason, the students' independent information search in a project context is of less importance – moreover, these teachers consider the project to be a disturbance in relation to their normal control of the teaching situation.

The first case, on the other hand, told us about teachers preoccupied with the more recent learning paradigm, where the teachers consider themselves to be facilitators for the the students' learning processes. Additionally, they see themselves – and the librarians – as guides in relation to both the students' information search processes and the result of the project. In other words, teaching is planned in accordance with – and in this sense, it provides guidance in relation to – the concrete projects. In fact,

the librarians' teaching was criticised for not being sufficiently differentiated in relation to the needs of the individual projects.

TEACHER POSITIONS IN ORIENTATION MAP OF INFORMATION LITERACY

Kapacitet	Capacity
Læring	Learning
Ydelse	Performance
Undervisning	Teaching
Facilitator for eksemplariske læringseksempler	Facilitator for exemplary learning examples
Vejleder	Guide
Bedømmer	Assessor
Faglærer	Subject teacher

Figure 7

We are dealing with two teacher types in the two cases; see figure 7. One type adheres to a conventional teaching discourse, where the teacher becomes a knowledge authority and assessor (examiner) – and where information search is about the students (re)finding the same essential knowledge. The consequence is reproduction and general education. The other type adheres to a more recent learning and teaching discourse, in which the teacher's and the librarian's role is first to facilitate the students' project process. Secondly, they become a sort of guides in relation to the presentation – in principle, a performance that is also seen as a learning process for the student with a view to getting the student to reflect independently on how he/she can perform better the next time. This is a fundamental break with reproduction in favour of the learner, understood as a self-education process and result, which is – continually – subjected to the guidance of teachers and librarians.

Is the upper secondary school out of step with current requirements on modern knowledge workers?

When upper secondary school teachers do not act as guides for the students' independent information search – but rather serve as instructors who allow the students to (re-)find knowledge in previously selected sources – is this an old-fashioned control of qualifications and general education? Or is it the first step towards making the students – e.g. first-year students – information literate and information creative?

SUMMARY

Information literacy has been hailed as the 21st century's – the digital society's – key competency. We also know from foreign and Danish studies that there are difficulties in developing this competency at a sufficiently high level – for a sufficient number of people. It is true that many people are able to google, but googling is not good enough. Those who are most worried, say that we are witnessing digital illiteracy. If this is the case, we are faced with two urgent issues: 1) the development of a new basic skill at too low a level, and 2) the creation of inequality on a par with what we know when discussing equality in relation to reading proficiency.

But why are educational institutions – right from the primary school via the upper secondary school to the institutions of higher education – so slow at implementing the use of IT hardware in teaching and learning contexts? Are we victims of a naïve idea that the very presence of IT will create a competent use of the same? Is it sheer laziness – on the part of teachers and students alike – in relation to getting acquainted with the new possibilities for searching for information and knowledge offered by the new media? Or is it perhaps a combination of ignorance and laziness? Hard to tell. After all, it is an equally great myth that IT in itself is negative as it is that the mere presence of IT should in itself be positive – not all young people from the Google generation are particularly IT literate! But, what is at stake, then?

The paper's *Part 1* proposed a closer look at fundamentally different approaches to information literacy in order to spot the conflicts that may be blocking the development of such literacy at a high level. In concrete terms, the paper describes a teaching discourse and a learning discourse as two very different and – at times – conflicting ways of understanding information literacy. For instance, to what extent is the individual student's use of – and learning by means of – new search media hampered by a classic teaching discourse, where teachers and librarians have defined in advance what is significant and interesting information and knowledge for students? And in even more general terms: Does a classic teaching discourse impede

the Danish society's efforts to educate modern knowledge workers who master a faster and more original handling of information and knowledge? In any case, it has been indicated over a number of years that the knowledge society was demanding people with the competency to collaborate with others on projects – but what if the slow impact is connected with a conventional teaching and information search culture's dominance? At any rate, this is an explanation that either supplements or replaces the ignorance and laziness explanation.

The paper's *Part 2* focused on information literacy in the upper secondary school. In this context, too, we know from the study *Gymnasieelever og biblioteker* (Upper Secondary School Students and Libraries) (Pors 2007) that the vast majority of upper secondary school students agree that they prefer to search for information and literature by means of Google or other general search engines. The question is then, why do they not change their views at upper secondary school? Is this because the upper secondary school lacks a sufficiently clear – compelling and uniting – ambition to make upper secondary school students information literate? In the present discussion paper, this question becomes obvious because only a guiding ambition exists for increasing information literacy over the three years at upper secondary school. Why not have an ambition about developing the upper secondary school to represent a modern information search culture where students first become information qualified, then later become information literate and finally, they become information creative? (See page 18.) This would probably also contribute to a renewal of the upper secondary school's educational objectives so that we could start talking about the extent to which the upper secondary school creates authoritative citizens and educates learning beings who are capable of handling an IT-facilitated study and knowledge work.

If we look at different cases from the upper secondary school, they indicate that the teacher is still authoritative in relation to deciding what information is credible. The students apply a conventional way of assessing the credibility of information sources, although they are perfectly aware of other digital media's alternative publication bases and options. To put it bluntly, reading – and searching in – entire books remains the teacher-authorised standard for the process before a paper in Danish is written, at least if the time so permits. This creates generally educated students, but does it create study and information literate students equipped for the 21st century's

digital society?

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