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Debating credibility: The shaping of information literacies in upper secondary schools

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Abstract

Purpose The article concerns information literacies in an environment characterised by the two partly competing and contradictory cultures of print and digital. The aim is to provide a better understanding of the ways in which students assess the credibility of sources they use in school, with a particular interest in how they treat participatory genres.
Design/methodology/approach An ethnographic study of a school class's project work was conducted through observations, interviews, and log books in blog form. The analysis was influenced by a socio-cultural perspective.
Findings The study provides increased empirically based understanding of students' information literacy practices. Four non-exclusive approaches to credibility stemming from control, balance, commitment, and multiplicity were identified.
Originality/value The study adds to the understanding of how credibility is assessed in school environments with a particular focus on how digital and participatory genres are treated.

Keywords Credibility, Information literacy, Socio-cultural perspective, Participatory media, Students, Upper secondary school

Classification Research paper

1. Introduction

Is Wikipedia as credible as, or even more credible than, an encyclopaedia published by an established publishing house? This was one of the questions facing the group of upper secondary school students that feature in this article. As in many other tasks in schools today, the students worked in groups looking for and using information in a wider media ecology than was available twenty years ago. They were expected to search for information in books, in databases, and on the web. What differed from many school-based project work was that assessing the credibility of the sources the students found was the task's object of learning. Information literacy issues such as determining the credibility of a source, are often something that students are expected to deal with on their way to some other end product, such as a text on a particular topic. In many cases, how sources for the end product are found and evaluated is discussed very little. Thus, the task highlighted one of the most difficult challenges facing learners today, namely to determine what can be regarded as a credible source in a particular situation.

The task was designed so that the students would need to confront a variety of sources with different social and technical characteristics, including sources from participatory and user-created genres where there are fewer control filters between the author and the reader. The decision concerning what is to be viewed as an authoritative source thus rests on the shoulders of the reader to a larger extent than when there are, for instance, editors, peer reviewers, publishers, librarians or teachers involved in the selection. With web and mobile technology, varying degrees of control is increasingly an issue, and to some extent it can be viewed as a difference between print and digital cultures. The overarching topic of this article concerns what it is to become (information) literate in an environment characterised by these two partly competing and contradictory cultures.

The introduction of new communication technologies draws attention to the fact that reading, writing, publishing, tagging, and searching, as well as the ability to critically reflect on these practices, benefit from being seen as sociotechnical practices (cf. Bruce, 1997; Tuominen *et al.*, 2005). This is acknowledged in a socio-cultural perspective, which draws attention to people's information-related practices and their use of tools in diverse contexts. We apply a socio-cultural perspective to study the students' information literacy practices in the context of the school.

In the article, we take a closer look at how students argue for and act with regard to what is or is not a credible source. The aim of the study is to gain a better understanding of the ways in which students assess the credibility of sources they use in school, with a particular interest in how they treat participatory genres. The point of departure for the empirical investigation is the actual learning task which the students carry out (Limberg, 2007). In order to capture as many aspects of this learning task as possible, we have made an ethnographically oriented study of classroom practices. We discuss a number of different strategies employed by the students in their work and based on these we identify four different approaches to credibility that the students rely on in their assessments.

2. Information literacy research

Literacy, often in combination with various prefixes, such as *digital*, *media*, *computer*, *visual*, *technology*, *communication* and, as is our focus, *information*, is referred to quite frequently in the research literature (cf. Bawden, 2001; Marcum, 2002; Martin, 2008). This indicates a growing interest in the field of literacy studies, and in considering literacy from a broader perspective than 'only' a matter of traditional reading and writing. One reason for the broadening perspective is, of course, the changing media landscape. Another is a growing interest in addressing literacy from a socio-cultural perspective. When literacy is seen as related to social practices rather than to an inner state of mind, the study of literacy becomes primarily a social one (Gee, 1990, p. 42 f.; Lankshear and Knobel, 2003, p. 12). We use practice in the article to refer to "[...] embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (Schatzki, 2001, p. 2). Thus, information practices, such as those associated with information literacy, are seen as "arrays of human activity" related to dealings with information. This embeds the practices in the material life of society and makes it possible to study them. A socio-cultural perspective on (information) literacy is often combined with criticism of traditional schooling and its epistemology, what Colin Lankshear and Michele Knobel call "the deep grammar of schooling" (2003, p. 30; cf. Limberg *et al.*, 2008). According to this critique, the perspective of knowledge which has dominated the western school system for hundreds of years is not suited for digital cultures.

The socio-cultural tradition has its roots in the Vygotskian perspective of learning as tool-based practices. A situated and contextualised understanding of literacy is also advocated by the linguist James Paul Gee, who notes that: "One always and only learns to interpret text of a certain type in certain ways through having access

to, and ample experiences in, social settings where texts of that type are read in those ways" (1990, p. 45; cf. Bazerman, 1988). Tools, for instance in the form of information artefacts, are emphasised in the socio-cultural perspective as mediating people's activities (e.g. Lankshear and Knobel, 2008; Säljö, 1999). The materiality of artefacts is viewed as influencing various social practices. At the same time, technology is given meaning, and is hence constructed, in situated practices. In line with this, artefacts are viewed not only as material but also as incorporating intellectual resources (cf. Cole, 1996, 117 ff.; Säljö, 1999).

The adoption of a socio-cultural perspective in this study involves a number of assumptions that influence how information literacy is studied and analysed. One is that we understand students' information literacy as learned within certain social settings and their practices. In socio-cultural terms, students take on and use tools in relation to information literacy within a specific setting. That is, information literacy in all its various expressions (including searching, critically assessing, cutting, pasting, presenting, and producing information) is given meaning only when it is interpreted as part of an overarching social practice, such as contemporary schooling (cf. Lloyd, 2010). Another, and related, assumption is that information literacy should rather be referred to in the plural, literacies, since the learning of information literacy as part of one practice and in one social setting differs from learning information literacy as part of other practices and in other social settings. A third assumption is that in order to understand students' literacies as they are shaped in school, we must gain an in-depth understanding of what actually goes on in the classroom and in the distributed classroom on the web. Furthermore, students' information practices are mediated by the tools available. The tools thus influence the students' possibilities to carry out their work and the affordances of the tools must, accordingly, be taken into consideration.

3. Credibility assessments in school environments

Credibility assessment, the empirical focus of the present article, has been thoroughly studied in various research communities (Rieh and Danielson, 2007, p. 307). In Library and Information Science, it has often been included as part of relevance or information quality (Rieh and Danielson, 2007, p. 312, 316). As is the case with the concept of relevance, credibility is dynamic and multidimensional and needs to be interpreted in relation to particular situations and tasks (e.g. Kuhlthau, 1993; Rieh and Danielson, 2007). It is also something that is attributed rather than a property; a person or source is credible *to* somebody in a specific situation.

Young people's credibility assessments have been of concern to information literacy research, as well as for other research areas. Information literacy studies have shown that students have difficulties with assessing credibility in educational environments (e.g. Alexandersson and Limberg, 2003; Hilligoss and Rieh, 2008; Julien and Barker, 2009; Sundin and Francke, 2009). Previous studies of information seeking and use in school environments have also shown these particular environments to have a number of characteristics that influence the students' information practices. Activities in the school often take their point of departure in learning assignments, for instance tasks that require the students to seek and use information (Limberg, 2007). Louise Limberg (1999; 2007) has demonstrated that upper secondary school students often address these tasks by searching for facts, without questioning them, rather than by scrutinising and analysing the information, and that this behaviour is founded in their earlier school experiences (cf. Limberg *et al.*, 2008; Todd, 2006). This follows from the fact that school tasks are often constructed as non-research tasks, even though in the discursive practice of the school they are talked about as 'research'. They tend not to be based on genuine research questions, but on the understanding that correct answers can be found, compiled and re-presented (Limberg, 2007; cf. Lankshear and Knobel, 2008). A consequence is that when students assess credibility in school, they often adjust to what they perceive to be the requirements of their

teachers rather than assess credibility based on their own standards for what is credible (Hilligoss and Rieh, 2008; Sundin and Francke, 2009). These findings indicate that students' interactions with artefacts and their communication with fellow students or adults are shaped by the school context, where students define their task according to the school's discursive practices. This observation further illuminates the need for situated and embedded research on credibility assessments in schools, as well as in other empirical contexts.

Authorities of various kinds, either in the form of authors, publishers, or mediators, have come across in previous studies as an important tool used by students when they assess credibility. The students are often aware that web sites, and particularly participatory media such as Wikipedia, can be edited (Luyt *et al.* 2008; Rieh and Hilligoss, 2008; Sundin and Francke, 2009). David Lankes argues that because of the amount of resources available on the Internet, authority becomes harder to determine and appraising reliability by comparing the agreement between several sources will become an increasingly employed technique for assessing credibility: "the problem of determining the credibility of Internet-based information is not a crisis of authority, but rather a crisis of choice. There are simply currently more choices about whom to trust" (2008, p. 107; cf. Meola, 2004). Both these techniques can be traced in students' information literacy practices (Rieh and Hilligoss, 2008; Sundin and Francke, 2009).

A socio-cultural approach directs attention towards the material tools, to information literacy as a sociotechnical practice (Tuominen *et al.*, 2005). The medium of a source has also proved to be important for credibility assessments, even if the particular architecture of the medium is more seldom exploited in this context (Hilligoss and Rieh, 2008; Sundin and Francke, 2009). The views expressed by the students are frequently in line with early hypertext theory, where print media was often portrayed as more fixed and digital media as more fluid or dynamic (e.g. Bolter, 2001: 8 f.; Landow, 1997). Later researchers have argued that stability and fluidity are relative in both print and digital media (e.g. Levy, 2003, 36 f.). Closely related to the artefact's architecture is its genre, incorporating various regularities in rhetorical action (Miller, 1994, p. 31). Genre is another tool used by students in credibility assessments (Francke and Sundin, 2009; Hilligoss and Rieh, 2008; Sundin and Francke, 2009).

Genres within participatory media, such as collaborative encyclopaedias or political blogs, show a large degree of fluidity and can be expected to challenge school practices and their foundation in a print culture. However, so far there are few empirical studies that explore, from an information literacy perspective, how students relate to such sources as part of their school work. In the article, we wish to make a contribution in this field.

4. Methods and material

Our aim in the study has been to understand how upper secondary school students assess the credibility of sources by investigating their activities when faced with a task that requires them to rank sources according to credibility. We have applied an ethnographic approach aimed to generate rich and multifaceted empirical material through several techniques. These include interviews, direct observation, and written documents (cf. Patton, 1990, p. 10).

The study was carried out in a medium-sized upper secondary school in one of Sweden's larger cities in the fall of 2008. A number of schools were contacted in preparation for the study, and the selected class, in the Social Studies programme, was approached because the project planned by the teacher and the school librarian was considered of particular interest to the study of credibility assessments. The participating students or, if they were not over 18 years of age, their parents gave their informed consent to participate in the study. The school and individual students are anonymous in the article, and we refer to individual students using pseudonyms. All

applicable requirements on research ethics set by the Swedish Research Council have been obeyed.

The class had 29 students, 4 or whom were male. The assignment set for the students was to identify twelve sources that concerned the expansion or phase-out of nuclear power in Europe and to rank them in order of credibility. The students were encouraged to treat the assignment as though it would lead on to the actual writing of a paper on the subject. The work was done in groups, and each group had to agree on one ranked list and make an oral presentation where they motivated their choice of ranking. Some sources on the list were compulsory, among which were Greenpeace's web site, Wikipedia articles in at least three languages, a large encyclopaedia (*Nationalencyklopedin*), an article found through an article database, and a blog. The project included three lectures by the teacher and librarian on trust, credibility, and information seeking. These spanned both abstract discussions concerning trust and very specific information about how to use certain databases and search engines and how to look at the history and discussion pages of Wikipedia entries. The students also had one supervised session in the school library where they could get help with their information seeking.

We conducted observations in the classroom and library during the scheduled time the students spent working on the project. The project spanned seven weeks with 1.5 to 2 hours of scheduled classroom time per week. One or two researchers were present for all the meetings. The researchers kept unstructured field notes from the observations. The students carried out an extensive amount of work outside of the classroom, which means that our most important material comes from the blogs kept by the students as part of the project. The blog postings were part of the requirements for the course unit. They were password protected and only accessible to the student, teacher, school librarian, and researchers. The students were encouraged to use the blogs to "reflect on your process, particularly when it comes to how you search for and assess the credibility of information/sources for the project" (Lecture material). In addition to the blog posts, we received copies of the lists of ranked sources handed in by some of the groups at the end of the project.

At the end of the project, the students were interviewed in groups, although in two groups only one student was present and so they were interviewed individually. The interviews were semi-structured and focused on the sources the students had found in the project, their experiences and views on participatory sources, and how they assessed the credibility of sources in varying situations, including in school (and previous school experiences) and in their spare time. The interviews lasted between 10 and 30 minutes and have been transcribed. Contextual information about the school resources and pedagogy, the class, and the assignment were gathered through interviews at the beginning and end of the project with the teacher and the school librarian involved in the project, and through the hand-outs delivered to the students.

The blog postings, transcripts from the group interviews with the students, and field notes from the observations were carefully read by all the authors. From these texts, occasions when the students acted or expressed an opinion which had to do with the credibility of a source were extracted and a list of arguments for or against a source's credibility was created. These arguments were grouped thematically to represent repeatedly occurring aspects or strategies used in the assessment of credibility. The themes emerged mainly through a close reading of the transcripts, but also reflect a concern present in socio-cultural theory for the materiality of the physical and intellectual tools with and through which people interact with the world. The empirically grounded themes, or strategies, were then analysed in light of previous research and aggregated into four approaches that illustrate different, sometimes co-existing, ways of relating to credibility. The approaches were constructed across the strategies.

The presentation of the six strategies is supported by quotes from the blogs and interviews. The interviews and the majority of the blog postings were in Swedish and they have been translated into informal written English. Given the difficulty of

capturing informal oral or written teenage everyday language in translation, the translated quotations are often slightly more formal than the original.

The wish to study the students' activities, what they *do*, and not only how they *describe* what they do, was slightly limited by the relatively short amount of time we had in the classroom. Since much of the work took place outside the classes, we could not be there for all information seeking sessions and group discussions. This was somewhat compensated by the fact that the blog made it possible for us to follow the students' descriptions of what they did and how they reasoned in relation to specific sources, which made the task more concrete than when they talked in the interviews about general guidelines they hade been taught in school. Furthermore, many of the students claimed that this was the first time they encountered a more profound discussion of credibility in digital media. This naturally influenced some of their actions and replies. It is difficult to predict if they would make assessments according to the same strategies at a later point in time.

5. Addressing credibility

In the interviews, blogs, and field notes, a number of strategies were identified that the students applied when they assessed the credibility of the sources they worked with. The strategies involved using various properties of the sources as tools in the assessment process. There were variations in the interpretation of how the tools could be applied and what the strategies implied with regard to credibility. Several strategies could be applied in the assessment of the same source, and they were thus often used in a complementary fashion. The descriptions of the tools below are illustrated by quotations in order to bring out the different ways in which they were applied.

5.1 Authorship

To investigate the author of a source emerged as something important in the students' discussions of credibility. The focus was in most cases on finding information about the identity of the author(s), the author(s)'s expertise, and on the possibility to contact the author(s). Occasionally, the (im)possibility to identify a single author was also addressed, particularly in relation to Wikipedia.

In one of the lectures, the school librarian raised the issues of Why, When, and by Whom a web site was created (PPT file from lecture). It is therefore not surprising that most students expressed a wish to be able to identify the author of a source and assess his or her credibility. One student, Karolina, mentioned in her blog: "What makes me trust the sources are their history. Where does it come from? Why has the person written this and not, for example, that. What background does the person have and does it have anything to do with my topic? Is he/she well known?" She thus mirrors many of the questions raised by the librarian. The trust in the individual author and in academic credentials is clearly present both here and in other statements by the students.

The issue of authorship became particularly interesting when the students were faced with unknown authors or could not find out who the author was. The consequences of ease of publishing in such technologies as wikis or blogs were discussed not least in relation to Wikipedia. When the school project started, many of the students were unaware of how articles in Wikipedia were created. After getting to know more about Wikipedia in one of the lectures accompanying the project, the students expressed conflicting reactions to it. They liked Wikipedia and used it a great deal, but it did not fit with their views on authorship: "The fact that anyone can edit and mess about with the content gives you something to think about." (Jasmine/Blog) The librarian discussed the idea that if many people read the information and have the

possibility to change mistakes, the mistakes will not remain for long. This was touched upon – and questioned – in one of the group discussions:

> KATE: Well… take Wikipedia, for example, they said that there are many people who watch it… if you… Nuclear power, for example, I think if someone was to just go in and write a lot of… crap, then someone who watches it would change that as soon as they saw it. So I still think it's quite safe. But you still have to check. […]
> KAROLINA: But let's say that Kate writes something that isn't true, and then I read it before they've had time to change it or remove it, then it's like… Then I still believe it. Even though it's wrong. So you can't, I don't think you can trust it. (Group 3/Interview)

Related to the idea of many readers giving grounds for trusting a document is the idea that if many people trust an organisation, it is credible. This view came across when the students discussed the web site of Vattenfall, one of the major energy companies in Sweden. One group had ranked Vattenfall as the most credible of the sources because the company has a great many people as clients and it thus influences ordinary citizens.

> JOANNA: We all agreed on Vattenfall.
> JELENA: Yes, that was definitely […].
> INTERVIEWER: Why did that one end up at the top?
> JOANNA: Because they were… they have… the biggest production of electricity in Sweden…
> JELENA: A third of Sweden uses electricity from… nuclear power and stuff. (Group 2/Interview)

Although such factors as the author's expertise or the possibility to contact the author were extremely important, the students did in some cases also express the opinion that a collective of readers or customers who seem to trust a source will make it credible.

5.2 References

Another thing the students discussed as influencing a document's credibility was references. References were mentioned by the librarian in relation to the credibility of a web site. In general, those who discussed this matter regarded a source as more credible the more references to other sources it contained. Josefin explained in her blog: "We thought it was a credible source because you can borrow it at the library and the book has a list of references […]." Rachel pointed out that a web site on the nuclear power plant disaster in Chernobyl could be regarded as credible because it contained references to credible sources, including both first- and second-hand sources. Rachel ends her comment by remarking about the author of the web site "He links to lots of good pages as well, which is really good, I think".

There is an active discussion in Wikipedia concerning the use of references to support claims in the articles. In this study, Wikipedia articles were questioned by some of the students because the authors do not always clearly state their sources: "All references aren't always included because many people who write there don't add references or sources" (Ruth/Blog). Other students underlined the importance of assessing references in Wikipedia. References create a network of sources and the size and strength of the network can grant credibility to a source:

> We also saw that the Spanish [article on nuclear power] had extremely many references, so I think you can trust that what it says is actually correct. The

> Swedish one doesn't have as many, only English and German wiki[pedia]. I had a look at them too, and they had quite a few sources so I suppose they are a good basis for the Swedish article. (Pia/Blog)

Following the traces of an argument through references is a traditional way of assessing credibility. However, it is also often viewed as a leading principle in participatory media such as Wikipedia, where the credibility of the authors is said to be of less or no importance (Wikipedia: Verifiability, 2010).

5.3 Applicability

Credibility was also considered by the students in relation to how a certain source was to be used. They raised the question of 'credible in relation to what'? This question referred back to the assignment the students were given, which formed the circumstances under which the sources were assessed. Some students did not make a distinction between what was credible and what was applicable, whereas others found it problematic to find an agreement between what they generally considered to be credible sources to use in school assignments and the assignment they were set. One problem was the task's condition that the sources were to be for or against the use of nuclear power in combination with the instructions that the imagined end product would be a paper. These requirements clashed with the students' wish to base their papers on 'facts' rather than arguments for or against something.

> KAJSA: Although now it was sort of a matter of finding something strongly for or against. We looked at that, too. But ordinarily, I would have searched for neutral, neutrality, because it would have been for our own project. (Group 3/Interview)

Another cause for concern was the fact that the students were presented with four sources that were compulsory on their lists. These sources included such advocates of a particular ideological position as Greenpeace, but also what were perceived as neutral sources in the form of encyclopaedias: *Nationalencyklopedin* (the Swedish national encyclopaedia, equivalent to the *Encyclopaedia Britannica*) and Wikipedia in three different language versions.

> If we had a project on the actual nuclear power stations, I would consider using this page, but now we're sort of looking for sources with opinions and there aren't any on this page (if so, very cleverly and minimally embedded into the text), so *Nationalencyklopedin* isn't very good for this, but on the other hand, wiki[pedia] is also a page with facts. (Pia/Blog)

Several of the students experienced a perceived conflict between relying on sources that they generally consider relevant in their school practices, which they interpret as being sources focusing on facts and recording how 'things are', versus the sources that this assignment required them to include, which they understood to contain opinions rather than facts. This is in line with results from previous studies that have shown that many students construct a strong dichotomy between facts and opinions (cf. Limberg *et al.*, 2008; Sundin and Francke, 2009; Todd, 2006).

5.4 Currency

It was important for the students *when* a source had been published. Contemporaneity is an indicator traditionally used in assessments of the credibility of documents, and one that has been adopted by many checklists for assessing credibility on the web, but mainly in terms of currency rather than contemporaneity. The librarian raised the

question of when a web site had been published and updated and how current the information was. The students often questioned the ease with which content can be changed in digital media, but at the same time, they viewed currency and frequent updates as something positive. When asked about the advantages of Wikipedia, one group argued:

> KAJSA: That there's always something happening there.
> KAROLINA: Yes.
> KAJSA: That's good.
> INTERVIEWER: Why is that good?
> KAJSA: It's updated, there's new information and that's good. (Group 3/Interview)

However, Wikipedia was not the only source to be regarded favourably because of frequent updating. This was also something highlighted in relation to the digital version of *Nationalencyklopedin*: "Something that's positive about the source is that it's frequently updated" (Ingrid/Blog).

The updating rate in digital sources was often compared to that in printed sources: "Information on the Internet is constantly updated, unlike in books" (Petronella/Blog). Currency was in some instances the reason why one group of sources was regarded as more credible compared to another: "We also chose more Internet pages than books as sources because the Internet is constantly updated, which books aren't – something that's valid today might not be valid tomorrow […]" (Josefin/Blog). An interesting phenomenon was how the checklist recommendation to pay attention to the date when a web site was last updated was transferred to print media. For instance, Päivi argued on her blog: "This book contains lots of instructive and useful facts but nevertheless, you have to consider that it is a year or so old and the facts may not be quite valid in today's society".

It should be noted, however, that the emphasis on currency was not embraced by everyone. Rachel blogged about a web site: "A very old source that hasn't been updated for years, but there are incredibly interesting and good facts. Reliable? Yes, I would say so." She obviously feels that she needs to mention the age of the site (last updated in 2005 and concerning the Chernobyl disaster), but she still views the content as useful. The students also discussed the age of the source in relation to the phenomenon it was describing, indicating that the topic influenced what could be considered sufficiently current information.

> INTERVIEWER: What were your thoughts on what was the most important factor here? I mean, is it that it's new information, or newly updated, or what…
> RACHEL: But it was both… well, we had to examine the information and see if it was credible and if it was valid today. Then it's still a credible source. (Group 8/Interview)

5.5 Media properties

Media-specific properties connected to the materiality of a medium came up in several ways in the students' discussions. For instance, the ease with which a web site could be navigated and its overall structure and layout were mentioned by some students as something that could enhance credibility: "Another plus for Greenpeace is their site, very well structured and easy to find all the information you need" (Pilar/Blog). The students wanted direct and easy access and were annoyed if they had to navigate between different pages.

The common view of print media as more fixed and digital media as more fluid or dynamic turned out to be important for many of the students. In the lectures

that were part of the project, the students learned about how the articles in Wikipedia are created, with frequent updates and the possibility for anyone to contribute. As mentioned earlier, this came as a negative surprise for some of them. For instance, Josefin noted: "I've changed my opinion about Wikipedia and in the future I will try to use Wikipedia as little as possible because the information is constantly changing" (Josefin/Blog), and Petronella had a similar reaction: "That people can change as they please on Wikipedia makes its facts less trustworthy" (Petronella/Blog). Some students used the paratexts (the interpretative thresholds to the text (Genette, 1997)) offered by Wikipedia to find out about authorship and other tools to assess the credibility of specific articles rather than of Wikipedia as a whole. For instance, Rachel discussed the article on nuclear power in the English language version, which she regarded as more credible than the article in the Swedish version:

> Because it is semi protected. As I have understood semi protection, not anybody can go in and change the text, and the last update was yesterday. It's active and there aren't many different people who edit it, it is mostly one person who checks it and changes a bit once in a while, which feels safe. (Rachel/Blog)

In this quote, the student demonstrates how she perceives control of authors and content as something that adds to the credibility of the Wikipedia article (cf. the discussion of Authorship).

Other students assessed the Swedish language article by analysing the discussion and history pages: "I don't find this article credible because when you read on its discussion forum you can see the shortcomings in the article" (Karolina/Blog). Thus, both advantages and disadvantages of the interactive, dynamic character of Wikipedia were addressed by the students.

5.6 Genre

Genre was another aspect that emerged in the students' discussions in relation to credibility. In some cases, the perception of what characterised certain genres was closely connected to perceptions of print and digital media. Some genres were associated with print, and thus considered more fixed or stable, whereas other genres were mainly or exclusively viewed as found in presumably fluid digital media. However, the most striking connection appeared between a genre and a perception of that genre as containing facts or opinions.

A genre (or set of genres) that can illustrate this is blogs. There was a strong tendency in the class to refer to blogs as not credible. This attitude was in fact less grounded in the fluidity of the web than in the view that blogs only contain opinions or highly biased statements. Kajsa explained: "I don't like using facts from blogs because they are very personal and full of opinions, I just want facts, pure facts" (Kajsa/Blog). One group pointed out that even blogs that present facts can do so in a way that is biased because of the selection of facts included:

> RENATE: For example, if you have a blog where you write about facts you've found. I mean real facts… but it's also possible that you end up writing facts that are only negative or only positive. Not everyone writes sort of impartially or neutrally. (Group 8/Interview)

In a few cases, the tendency to equate a genre with either facts or opinions was viewed as more complicated. In one of the group interviews, Petra argued that a blog could also contain facts:

> PETRA: But there are also blogs that contain facts. Some people blog only about facts. "Now I've found this and that and it's completely correct, and so on. I've checked it." People write that kind of stuff too.
> PIA: But still, it doesn't feel very credible. (Group 7/Interview)

Pia's answer shows how the general perception of a genre in many cases had a stronger influence on the credibility assessment than the characteristics that emerged from studying individual sources.

5.7 Rhetoric

The students quite often referred to convincing argumentation in the sources as enhancing credibility: "It contains good arguments and it's convincing so it's easy to believe in what you read, this makes it a terrifically credible home page" (Päivi/Blog). The degree to which arguments and counter arguments were drawn upon rhetorically was something that influenced the students, and they had various ways of interpreting this in terms of credibility. One way was to trust sources that presented neutral facts: "After having read this article, I interpret it as if [the author] hasn't added any opinions of his own. It's clear and pure facts, nothing pro and nothing con." (Rachel/Blog) However, there were some students who pointed out that it could be difficult to find facts that were neutral: "At this point, I have realized that it's almost impossible to get neutral information. It can be difficult to detect the author's hidden views." (Petronella/Blog)

In other statements, students referred to sources that presented both pros and cons of an issue in a balanced manner and indicated that this could actually strengthen credibility. For instance, Petronella commented on a Wikipedia article: "they are quite versatile. Fairly objective, they mention both pros and cons of nuclear power." (Pertronella/Blog) Sources that were too one-sided were viewed more critically: "I don't think this page is credible because they make everything sound so positive and they don't mention the negative stuff that I've seen when I've scanned other pages" (Michelle/Blog). In some cases, however, to include counter arguments to one's own position was viewed as a weakness: "[This organisation] has good arguments, they're realistic and admit that nuclear power isn't perfect but that it's the best option we have today, etc. Precisely because of that they are also not quite convincing, in that they actually hesitate and show uncertainty." (Petronella/Blog) It is clear that the students interpreted the idea of balanced argumentation that includes both arguments and counter arguments in very different ways.

Wikipedia is particularly interesting in this context, as its policy of a Neutral Point of View (Wikipedia: Neutral Point of View, 2010) encourages (or even demands) the inclusion of multiple points of view in articles that concern potentially controversial issues. In the students' discussions of Wikipedia, the issue of pros and cons was particularly visible, and seemed to render Wikipedia articles a higher degree of credibility than *Nationalencyklopedin*, which the students perceived as presenting a single viewpoint: "Wikipedia presents both pros and cons, while *Nationalencyklopedin* doesn't mention it at all!" (Pia/Blog) Here, neutrality becomes a question of balancing different viewpoints rather than presenting something as an indisputable fact. It should be noted, however, that credibility here becomes entangled with applicability, and that the task of finding pros and cons on the issue of nuclear power could have influenced the enthusiasm with which some students embraced sources with arguments both for and against.

5.8 Social commitment

The last strategy to be addressed here has to do with a commitment for society and what is perceived as a public good. Some of the students pointed to a social

commitment as something that increased their willingness to trust a person or an organisation. An organisation that was well-known to the students evoked trust and they transferred credibility from the organisation to the web site, as in the case of Greenpeace: "I think they genuinely want the world to become better" (Pia/Blog). Michelle observed:

> I think Greenpeace's is a very credible page. […] I think these people have a really clear message. They fight for a better world for our and future generations and that's really good. This is what makes the page credible, the fact that the message is very straightforward. (Michelle/Blog)

In one case, credibility resulted from the fact that the organisation acted on issues rather than merely talked about it, when Petronella noted: "Their policy is about turning theory into practice. It's not enough to just preach about how our world can become better and that nuclear power must be abolished, you have to really do something about it, too."

The credibility stemming from an organisation's perceived engagement in what is good for society and its citizens was not restricted to previously known organisations. For instance, Pilar found the web site of an American organisation called Public Citizen. After having investigated who they are, she concluded that they are "a national, nonprofit consumer advocacy organisation founded in 1971 in the USA. For me it seems a reliable source just like Greenpeace, it says that they want to protect us and our environment from the possible dangers caused by nuclear power." (Pilar/Blog)

This strategy has to be related to the one about authorship, of course. However, intention or commitment is not something commonly found among guidelines for assessing how credible an author is.

6. Approaches to credibility

The different strategies for assessing credibility outlined above form a basis for identifying four different approaches to credibility. These non-hierarchical approaches are based in the empirical material as presented above, but also in the discussion of previous research. We want to emphasize that the approaches are not connected to individual students, even if some students were more likely to adopt one approach rather than another.

6.1 Credibility from control

Strategies such as the ones above illustrate how the credibility of a source can be assessed based on how well it complies with certain rules. These rules form cultural tools (cf. Säljö, 1999), which, in the case of school tasks, are often embedded in school practices, not least in traditional schooling (cf. Lankshear and Knobel, 2003). Many such tools have to do with a sense of control. The control can be in the form of an author's academic degree, profession or affiliation to a knowledge institution, which indicates that their knowledge has been assessed by a trusted party, but it can also be connected to the difficulty and expense of publishing in particular media. Some media are associated with a higher degree of advance control of the accuracy, for instance, a printed book compared to a web site. Several of these tools are often included in so-called checklists. The decontextualised nature of these checklists invites interpretations based on a dichotomy: *credible* or *not credible*. This is a reaction that can be found in this approach and that in school environments is often a response to the shortage of time available when students work with school tasks.

However, it is also possible to use such rules for carrying out a careful analysis of a source, more true to historical source criticism. In this case, the control stems not from somebody else but from the person's own control of claims. This can take the form of, for instance, an analysis of the expertise of the author, the publishing history, and the way in which the text relates to the sources it makes reference to, which goes beyond academic degrees, well-known names, and lists. Rather, the analysis interrogates the claims made in the source to ascertain their validity. In these cases, students actually interpret and translate checklist criteria to make explicit considerations and deliberations about credibility. This interpretation of the control approach has some features in common with findings from previous research, e.g. information seeking as analysing and scrutinising (Limberg, 1999), implying a critical approach to information sources.

6.2 Credibility from balance

Appreciation of many sources and an interest in comparing statements in a range of different sources characterises the approach where credibility is associated with balance (cf. Lankes, 2008; Meola, 2004). If statements in several sources corroborate each other, the sources are more likely to be viewed as credible. The sources can be found independently of each other, although the use of references in a source can simplify comparison. In line with the reasoning in this approach, a network of credible sources provided by references gives authority to a source or claim (cf. Latour, 1987).

A balance between perspectives is also part of this approach. Sources that present arguments both for and against an issue, or include alternatives, are attributed high credibility. Limberg (1999) found that one approach to information seeking among students was to balance information to make the right decision when forming a personal standpoint on a politically controversial issue. That approach is similar to the one discussed here. Objectivity is, in this view, less related to finding 'true' facts than to balancing different viewpoints. In that sense, this approach handles credibility as relational, that is, sources are assessed as credible in relation to other sources and to the task at hand.

6.3 Credibility from commitment

Contrary to when credibility results from balance, a commitment in the form of a standpoint or perceived responsibility makes some students trust a person or organisation responsible for a source. This is the case, for instance, with organisations that are viewed as promoting a particular opinion or issue because they want what is best for mankind. Such organisations are associated with a selfless struggle to improve living conditions for everyone, and this commitment on their part makes them credible in the eyes of those who adopt this approach.

Related to but different from the commitment of NGO-type organisations is the perceived social obligation that comes with activities that affect a great number of people. This accounts for the high credibility sometimes attributed to government organisations and public authorities. Whereas it can be argued that some of the trust stems from the fact that the country's leadership has been democratically elected and thus should be concerned with the good of the people, a similar trust extends to other organisations that are responsible for activities that will influence many. In the case of the energy company Vattenfall, some students express the opinion that since the company delivers power to one third of the Swedish population, their information 'should be correct'. Thus, commitment may be either explicitly expressed or assumed.

6.4 Credibility from multiplicity

The approach to credibility as stemming from multiplicity has to do with trust resulting from collaborative efforts to provide an accurate account of something. Various participatory genres provide examples of this, where multiple authors, not necessarily with the same agenda, collaborate on a document. Another aspect is when many people come across the information and have the possibility to make changes or initiate a public debate. Perhaps the best example of this is Wikipedia, where an article is sometimes viewed as more credible the more people have contributed to it and the more people are likely to have read it without finding mistakes that need to be corrected. There are obvious links between this approach and that of control in that collaboration of this type is a form of editorship or peer review, albeit in an often less structured way than is the case in publishing houses or academic journals. There are also overlaps with credibility from balance in that if many authors are involved in negotiating the content and phrasing of an article, they are likely to bring out conflicting perspectives and thus generate a text that is less biased in one direction or another. This approach also covers the view that if an author, organisation, or document is in the public eye it will be more likely to attract criticism if it makes faulty claims. If there is no or little opposition, the person or source is more likely to be credible.

6.5 Discussion

The four approaches to credibility identified above complement each other in various ways. In many cases, the same individual or group of individuals will draw on different approaches. Some will draw on all of the approaches, others will use the same approach regardless of situation. The present study did not seek to investigate which individual students used which specific approaches. Furthermore, the type of information artefact that needs to be assessed will encourage different types of approaches, something that becomes particularly visible when a socio-cultural interest in how tools and practices constitute each other is applied as an analytical lens (eg. Lankeshear and Knobel, 2008; Säljö, 1999). For instance, a Wikipedia article will be more likely to invite the approach of balance or multiplicity than commitment.

Approaches to credibility as stemming from *control* and *balance* can be traced to what students are taught in school and, most likely, in other contexts. That is, they are parts of the traditional way of treating credibility within the discursive practices of the school. The librarian and the students in this study discussed issues concerning authorship, currency, and references, as well as the importance of comparing different sources with each other. Credibility from *multiplicity* was also addressed by the librarian, who had a special interest in participatory media. The librarian explained how Wikipedia works and noted that the fact that there is a large number of contributors can enhance the potential for information to be credible. The way some students pointed to *commitment* as grounds for credibility, however, brought out an approach that rarely occurs on credibility checklists and that was not specifically addressed in the teaching associated to the project on ranking sources.

It should be noted, that the approaches of credibility from *commitment* and *multiplicity* were less frequent than those of *control* and *balance* in this study. Rather, many students were sceptical about how much they could trust Wikipedia articles after they had been told that anyone could contribute to them. In some cases where they expressed trust in Wikipedia articles, it was because of misapprehensions about how Wikipedia works, and the students attributed too much editorial control to the administrators. The students did not necessarily view credibility as resulting from *multiplicity*, despite the fact that the librarian discussed this as one of the consequences that participatory media have for credibility assessments.

Many of the students were clearly focused on finding facts in their information seeking practices. Facts were generally perceived as statements about how the world 'is'. Facts could be more or less credible, but value-laden facts, and what the students perceived as opinions, were rarely viewed as credible. This is an expression of a traditional view of knowledge as representing an underlying truth in the best possible way (Lankshear and Knobel, 2003, p. 156 f.; Limberg *et al.*, 2008). However, in the approach which values *commitment*, credible statements were associated with action, a vehicle for change, rather than as representing the truth. This leads to a potential challenging of the view of knowledge as value-neutral. Rather, it accepts knowledge as something that comprises values and personal judgement. Similarities to this can be found in post-modern understandings of knowledge, for instance in the 'best claims' of stand-point epistemology (Harding, 1991).

7. Concluding remarks

It is a cliché to say that networked digital environments have changed fundamentally the conditions for information literacies and that this also has influenced upper secondary schools. We are witnessing sociotechnical changes, including changing and merging media formats and publication patterns and substantially facilitated access to information, which means that digital media increasingly play a part in people's everyday lives. People live their lives as part of a huge information machinery, or perhaps rather information machineries. As a result, people have access to more second-hand knowledge than ever before (cf. Wilson, 1983). More and more people also participate as content creators in forums that are accessible to many others. What are the consequences for information practices and what are the new challenges for information literacy acquisition and education, not least in schools?

In the reported study, we followed the work of the students in one upper secondary school class as they were engaged in a task where making credibility assessments was the objective. The task was based on a research question in the sense that there were no 'correct answers', and in some student groups the ranking of sources provoked intense debates. This was also the case in the interaction between the class and the teacher and the librarian. Several different approaches, including those most often taught and appreciated in education, such as those originating in control and balance, were employed in these debates. However, despite the fact that the teacher and the librarian tried to introduce nuanced ways of dealing with the multiple voices of digital media, the students found the assessment of sources to be a highly complex task and the majority of them were most comfortable when they could rely on an authority they trusted or could find sources that corroborated each other. The focus on facts and the existence of correct answers that is the heritage of the traditional school is still difficult to challenge, even though the task invited such challenges and a few students did address them in discussions and in their takes on the project.

The sociotechnical character of credibility assessments, where useful tools can be found in the sources' architectures, in paratextual information, in the subject, and – not least – in knowledge of what is an accepted and encouraged practice in a particular situation, makes the assessments a highly complex task. Constructing conditions and tasks that will help students confront new digital learning environments is vital for future schooling. Cooperation between teachers and school librarians, as was done in this study, can be an important step. Furthermore, a need exists for developing didactics for critical assessment of sources and their credibility that will also make it possible and meaningful to address participatory media. This study indicates that credibility in digital media needs to be addressed and called into question repeatedly throughout the school years. In the end, assessing the degree of credibility of sources is a matter of how and through whose influence our knowledge is formed, either from authoritative sources or from a multitude of sources and voices.

Knowing how to make these choices in particular situations is a vital literacy for young people about to face more and more civic responsibility.

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