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Teaching media literacy, did we forget literacy?

This paper gives an overall philosophical framework, based on Nelson Goodman's semiotics, to describe work in library pedagogy including new media literacy. According to this view, knowledge is literacy, in other words, ability to recognize and use the rules of different symbol-systems in order to "make worlds". This view on information search is broader than described in Carol Kuhlthau's well-known description of the Information Search Process. Some practical examples from library pedagogy in Turku City Library are reviewed, together with findings that show that new information technology hasn't enhanced school performance as much as maybe was expected. These findings fit the overall philosophical view on literacy as worldmaking. The authors suggest that a semiotic-philosophical view on what thinking is helps us to challenge hasty and immature digitization.

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The renewed core curriculum in Finland that will be implemented in schools in 2016 puts special emphasis on thinking skills (Finnish National Board of Education 2014, 20-21). Information search (or better: knowledge search) is an essential ingredient in thinking skills, and it is taught to school classes also in public libraries in Finland. New media literacy has been included in library pedagogy for some years now, and we need to ask whether our pedagogy really agrees with the goals of the new core curriculum for schools. Some immediate questions arise: What do we mean by 'thinking skills' and by 'knowledge search', and how are they related to one another other? There is an obvious need for an overall framework with an emphasis on the interaction between thinking skills and knowledge search.

Nelson Goodman's semiotics provides an excellent framework for approaching the special problems of information search pedagogy in libraries, and probably in schools as well. Goodman's semiotics has the advantage that it is not topic-specific but can deal with practically any knowledge whatsoever; it is also independent of information storage and search technology; and, finally, it is able to combine in a natural way thinking skills with knowledge search.

Kuhlthau's model

The most well-known theoretical framework that has been used in library pedagogy is Carol Kuhlthau's model of the Information Search Process. It describes the stages of any normal research project at school or university, and, therefore, is intended to help pupils to manage through the project. For example, when one

understands what the completion of a project demands, one is prepared to meet the feelings of frustration which arise during the phase of exploration.

The inquiry starts with the stage of **initiation**, as a teacher announces a project. During the second stage, **selection**, students choose their topic or question according to personal interest and available time. The next stage is the most difficult one: the students need to **explore** their topic. Here they often get confused with multiple sources and inconsistent information, or with facts that are incompatible with their previous conceptions of the topic. At the next stage, **formulation**, the students decide on a focus around which the new information can be gathered. The gathering takes place during the **collection** phase. The inquiry process culminates in the **presentation** when students are assumed to share the results of their learning with other students. The final stage of assessment offers the opportunity both for the teacher and the student to reflect on the process as a whole which is particularly important for future projects. (Kuhlthau, Maniotes & Caspari 2007.)

Kuhlthau's model of the information search process is unsatisfactory in the sense that its view on learning and thinking is quite narrow. In addition, the guided inquiry method developed on the basis of the ISP is too time-consuming to serve library pedagogy work in a big public library. Contrary to a wide range semiotic approach, such as Goodman's, Kuhlthau's model is a special purpose model designed to explain, understand and guide students as they compose research projects assigned by their teachers. According to Dewey's definition which the writers quote approvingly "learning is a creative process of inquiry." (Kulhthau, Maniotes & Caspari 2007, 14.) However, this view of learning is quite constrained, excluding essential areas of learning which belong also to normal school programs. Music, physical education, hand crafts, and so on, are not learned through a process of inquiry but more traditionally including imitation, repetition and authoritative guiding by teachers.

A librarian who works with young students has to meet a range of interests which are not limited to writing assignments. A schoolboy may be interested in football or building a model air plane, and it is likely that his interests have arisen from his own hobbies. He is probably interested in developing his skills, and therefore the angle from which he approaches the topic is not mainly intellectual, for example an assignment from a teacher to write an essay about football or model air planes.

Non-fiction books are not the only material offered by libraries, but we offer also fiction, books on fine art, foreign language courses, video games, cd:s, music sheets and films. Library pedagogy covers more than teaching how to find a book for a science project. We may also discuss how to interpret book covers or give pupils small tasks like taking photos. Of course, also these matters can be seen as objects of intellectual inquiry, and fiction is, indeed, understood by Kuhlthau and her group (Kuhlthau, Maniotes & Caspari 2007, 96) as a target of inquiry. But one surely misses something if a poem by Baudelaire is considered only as providing "vivid descriptions of time periods, events, places, and experiences that enhance informational learning".

In QQML-6 Leena Pylkkö presented an overview of library pedagogic activities based on Nelson Goodman's semiotics (Pylkkö 2014). According to this view, libraries are considered as information centers which document how worlds and versions are created. Librarians guide the customers as they search their way toward the proper versions and their worlds.

What is thinking according to Goodman

Thinking presupposes understanding the basic ideas, their constellations and structures which are inherent in a specific area of knowledge. Within Goodman's semiotics 'thinking' and 'thinking skills' can cover a rich variety of areas within which man generates meaning and knowledge: science, visual art, literature, music, dance, and so on. For example, in Goodman's semiotics, unlike say in cognitive science, it makes sense to speak of 'musical thinking' or 'visual thin-

king'. This provides librarians, also in their pedagogic work, with a flexible and impartial framework for organizing the field of knowledge they have to comprehend and deal with. Especially, this helps them keeping in mind the distinction between literacy of ICT (information and communications technology) and literacy of each specific semiotic systems in which knowledge is incorporated. Therefore, 'literacy' can be understood here by and large as it has always been understood, namely, as competence of a specific semiotic system.

A competent user of a symbol system follows the rules of the system and produces what Goodman (1978) calls 'versions' of the world. If the symbol system is literary, versions are literary works; if the system is scientific, versions are scientific theories and statements; if the system is musical, versions are musical works or their parts, and so on. What is essential for our purpose is that 'literacy' means topic-related competence to use a symbol system, and that 'thinking skills' are rule-governed moves within the symbol system. Semiotics itself is nothing but a meta-level conceptual vista over the diversity of such symbol systems. This means that there are as many sorts of literacies as there are symbol systems, and that 'thinking' is a term which is reserved not solely for logical or computational processes in some allegedly universal formalism. Thinking always takes place within a specific symbol system as moves which accord with the rules of the system, not in an abstract and allegedly universal formalism.

Our cultural life consists of a variety (theoretically speaking of an infinity) of symbol systems. Goodman himself is an antirealist and claims that our universe consists of the ways of generating versions out of symbol systems. Some verbal versions are considered true and called 'worlds'. This is not, however, to be confounded with standard possible worlds semantics where possible worlds are understood as alternatives for one and only real actual world. Therefore within the possible world paradigm, two conflicting descriptions describe always two different worlds of which one only can be actual. Not so with Goodman. There can be conflicting true versions, and, therefore, several actual worlds (Goodman 1978, 2–3).

For Goodman 'truth' is a property of some verbal versions, but certainly not a correspondence relation between a verbal version and the allegedly one and only actual world. Yet he demands that some verbal versions are indeed true. Here 'true' means by and large the same as 'right according to the rules of a verbal symbol system.' Rightness itself is for Goodman "primarily a matter of fit: fit to what is referred to in one way or another [...]" (Goodman 1978, 138). He writes: "We cannot test a version by comparing it with a world undescribed, undepicted, unperceived [...]" (Goodman 1978, 4).

Verbal versions are but one sort among the immense variety of versions. Most symbol systems do not generate statements that are supposed to be true or false according to some belief system but render descriptions, exemplifications, samples, expressions, and so on, of which we can ask only whether they are right or wrong. This implies that knowledge is a matter of fit too (Goodman 1978, 21). A person seeking knowledge works always within a symbol system, its range of beliefs and rules, searching for a fit. This kind of antirealism, in the service of a librarian or a teacher, may be experienced as liberating force. It may be advantageous for their professional role that one can act impartially even if one's personal opinions would be highly partial.

We suggest that all successful knowledge seeking requires that the seeker has already internalized elements of a structured disposition concerning the topic area upon which the search is carried out. She recognizes some basic ideas and concepts, and understands some terms related to the ideas, and can form an overview of the topic area. The overview requires that she understands how the basic ideas and concepts are related to each other as a constellation. She can also follow the basic rules or norms of the semiotic system and independently perform 'moves' of her own by generating new and surprising ideas and meanings. This cannot mean anything else than that she has already acquired elementary competence of the semiotic sys-

tem in question, in other words, literacy on the topic area.

Though Nelson Goodman's semiotics may seem radically innovative because its scope of application is extremely wide, it is, simultaneously, practical in its flexibility, and, finally, it conforms to normal intuitions of what we mean by 'knowledge' and 'knowledge search'. Unlike many popular approaches to knowledge and reasoning, it doesn't tie the notion of 'thinking skill' to any formalism (like predicate logic, universal grammar, automata theory, 'language of thought,' and so on.)

Experiences in library pedagogy

New IC technology has been part of library pedagogy for some time in Turku City Library. Goodman's view on symbol systems or worlds can help us who work in library pedagogy to focus on the subject matter instead of the apps or apparatus that easily get too much attention.

The co-operation of libraries with schools is well organized and structured in Turku: school classes visit the library regularly to borrow books and attend book-talks and library pedagogy sessions. For example, classes of fourth-graders (10 year-old) attend a visit of max 1,5 hours to learn information search. The pupils receive a booklet with to 4 or 5 questions, and they are supposed to find the answers by consulting books, fiction and non-fiction alike, or through searching on the Internet. Work with the Internet is new because earlier only pencil and paper and the library catalogue on a web browser were used. Today the questions are partly the same as before, partly such that the tasks can be accomplished with touch-pads: some of the questions are given not as text on paper but as QR-codes. A typical task could require that a pupil studies pictures on book covers and is then asked to take a photo with a similar atmosphere. Another task would ask the pupils to film a short blog-insert about "what you shouldn't do on the Internet."

Response from feedback questionnaires, and discussions with pupils as well, show that the use of technology is practically never a problem for them. Finding the required book or cd or dvd in the shelves is considered much more difficult. The problems are related to reading and understanding short instructions or a page of a book. It makes no difference whether the instruction is written on a piece of paper or passed to them as a QR-code to be scanned with a touch-pad.

A group of 4th grade pupils was standing before a bookshelf, staring at the books and looking a bit lost. When asked what they were doing they explained that the task was to "look for a book in the shelf". But how do you know which book to look for? "We don´t know". The task was to "look for a book in the section for stories. The book is written by Lucy Hawking and placed after the author's surname". The children had read only the first sentence, which doesn't make any sense without the following sentence.

Similar examples show that in knowledge search the first obstacle for children may be understanding a simple written instruction. If this cannot be carried out, then, obviously, reading a Wiki article (say on the Deathly Nightshade) or a nonfiction book (say on Greek mythological monsters) may turn out to be very difficult. Using the latest IC technology cannot help solving these problems though, according to our surveys on feedback questionnaires, children find the library pedagogy with the new digital devices more entertaining than the traditional one.

ICT in classrooms

These experiences in library pedagogy with school-children are in line with findings that show that ICT doesn't necessarily lead to better performance in schools. At least some recent studies concerning the use of new media technology in classrooms suggest that we still need to resort (or even return back) to a normal conception of knowledge even if class rooms (and libraries) will be increasingly digitalized. Only a traditional intuition of what knowledge is, combined with a semiotic-philosophical overview, is able to meet the perplexities arising from immature digitalization. The view of knowledge and knowledge search which is promoted here puts emphasis on learning quite traditional

contents and concepts with quite traditional methods. Therefore we should be skeptical as regards the impact of some of the latest digital innovations on learning and thus careful of not giving up too soon traditional education (in math, verbal skills, music, visual design, physical education, and so on) and traditional methods, including those which utilize printed books. In their review of several metastudies on whether ICT has an impact on learning, Reimann and Aditomo (2013) conclude that "ICT does have a positive, albeit relatively small, impact on student's achievement". That the impact is small indeed can be entailed from their rather skeptical, if not ironic, comment that "technology does not have detrimental effect on learning."

A report published by OECD (2015) is even more skeptical. The report summarizes its results as follows (p. 3): "Students who use computers moderately at school tend to have somewhat better learning outcomes than students who use computers rarely. But students who use computers very frequently at school do a lot worse in most learning outcomes, even after accounting for social background and student demographics." This indicates that it is premature to abandon traditional conceptions of knowledge, knowledge search and leaning. Gaming and surfing the Internet doesn't improve thinking skills without the guidance of traditional learning. The skeptical results of research also oblige us to ask whether extensive economic support for education ICT is really justifiable. OECD (2015) answers: "The results also show no appreciable improvements in student achievement in reading, mathematics or science in the countries that had invested heavily in ICT for education."

To the same direction point Bulman and Fairlie (2015): "The implications from these findings suggest that we should not expect large positive (or negative) impacts from ICT investments in schools or computers at home. Schools should not expect major improvements in grades, test scores and other measures of academic outcomes from investments in ICT or adopting CAI in classrooms, though there might be exceptions such as some CAI interventions in developing countries."

The ability to seek and find knowledge doesn't essentially depend on the medium, especially not on the latest applications of search technology. Knowledge is literacy, that is, ability to recognize and use the rules of different symbol-systems in order to "make worlds", as Goodman used to put it (these ideas were already discussed by Leena Pylkkö in the QQML-14), and there is no successful knowledge search without this ability.

In spite of these critical remarks on ICT, it is good to notice that Goodman's view on knowledge can help us understand the multimodal possibilities that new technology offers. The use of iPads has made it easier in library pedagogy to cover other semiotic systems than written text. Our library sessions may include taking photos inspired by book covers or filming short video inserts about online etiquette.

Conclusions

Both empirical and philosophical arguments suggest that there is a danger that teaching practical use of new technology gets confounded with literacy of the subject matter itself, that is, mastering a semiotic system at hand. Only by avoiding this danger, libraries can support the new Finnish curriculum in its emphasis on thinking skills.

Only a traditional intuition of what knowledge is, combined with a semiotic-philosophical overview, is able to challenge hasty and immature digitization. The view of knowledge and knowledge search which is promoted here suggests that we should not bypass traditional contents and concepts, and too hastily abandon traditional methods of learning.

The ability to seek and find knowledge doesn't essentially depend on the medium, especially not on the latest applications of search technology. Knowledge is literacy, that is, ability to recognize and use the rules of different symbol-systems in order to "make worlds", as Goodman used to put it, and there is no successful knowledge search without this ability.

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Notes

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