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Vanek, Fredrik

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



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Information seeking as a process - a reflection on how to help students cross threshold concepts

Fredrik Vanek

Högskolepedagogisk introduktionskurs för Samhällsvetenskapliga
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Introduction

Information seeking can be an adventure. It can be a possibility to discover new material and expand one's mental horizons. It can also be a compulsory and frustrating part of one's academic career.

From experience, both as a teaching librarian and as a student myself, I know that the information seeking process isn't always that obvious; certainly not when you are about to begin your search or if you are new to the subject at hand. The field of information expands as you become aware of its characteristics. This echoes the findings of Kuhlthau's (1989) research, which has shown that our thoughts about a topic become clearer and more focused as we travel further into the search process.

Before we have understood our own field or points of interest some decisions can be hard, or even impossible, to make. For instance: what sources are appropriate within the field, what search terms are advisable to use and how do we evaluate the search results? Knowing the answers to these questions, or at least being aware of them and how they may be answered, is part of a set of skills within what is known as information literacy.

The lack of these skills can lead to excessive information, which in turn may lead to feelings of uncertainty, confusion, frustration and information anxiety (Kuhlthau, 1989; Andretta, 2005). Similar to the feeling of getting 2 million results on Google – all of which are irrelevant.

The focus of this paper is to reflect on how information seeking is perceived by students and, with didactic research in mind, how my own teaching best should be conducted.

Information literacy

As mentioned above, the ability to search for information is one of the components in a cluster of skills called *information literacy*. Information literacy is a well-debated term mainly used within library and information science and first introduced by Paul G. Zurkowski. To be, what he called, *information literate* was defined as to have learnt the “techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems” (Zurkowski, 1974, p. 6). Later on the term has been broadened and American Library Association (1989) proposed in a report that “information literate people know how to find, evaluate, and use information effectively to solve a particular problem or make a decision” (p. 1).

Juskiewicz and Cote (2014) argue that these skills, and teaching them, have been a topic of interest within the library field since 1880 when Justin Winsor, librarian at Harvard, recognized “the need for bibliographic instruction” (p. 8).

Threshold concepts within information literacy

My experience as a teaching librarian is that students often aren't aware of the aspects of information literacy. The focus of this paper lies on the information seeking part. My notion has been that students think they have to come up with the perfect search terms in order to get the best results. While this is true, since relevant search terms produce relevant results, students seldom reflect upon *how* to 'come up' with these terms. Kuhlthau (1989) concluded that information seeking begins with what she calls an *anomalous state of knowledge*, an information gap in our minds, which throughout our searching endeavors develops into an understanding. During this process we experience cognitive changes such as increasing confidence and interest, and also a shift in the state of the problem at hand. Why are we usually unaware of this internal, cumulative process?

The explanation could be that information seeking is part of a *threshold concept*. "Threshold concepts are key ideas, often troublesome and counterintuitive, that are critical to profound understanding of a domain. Once understood, they allow mastery of significant aspects of the domain, opening up new, previously inaccessible ways of thinking" (Tucker, Weedman, Bruce, & Edwards, 2014, p. 150). Tucker, Weedman, Bruce, and Edwards (2014) have studied threshold concepts within library and information science and found that the path to becoming information literate crosses several thresholds. They identified four themes that held the typical attributes of a threshold concept:

- (1) Information environment. The first threshold had to do with knowing how information is made and distributed. By understanding how scientific material is constructed, published and aggregated one can better assess what sources are suitable for solving a problem;
- (2) Information structures: This threshold includes understanding how information is indexed and how databases and search engines use the metadata;
- (3) Information vocabularies: The concept of understanding how the choice of language affect the searches, including the use of synonyms, controlled vocabulary and language-based tools such as truncation;
- (4) Concept fusion: which the authors described as the ability to combine these three concepts in a dynamic, synergetic manner.

If my objective is to help students become better at information seeking, I will have to make them aware of, and also assist them in crossing, these learning thresholds.

Learning and teaching in higher education

Students are individuals with different preferred learning strategies. Addressing a classroom has to be done with this in mind. Kugel (1993)

suggests that by using a *buckshot approach*, in other words a broad angle, we can spread out our teaching methods so that all students may gain from the session. That is: to use different methods when teaching, for example by using narratives, showing pictures and doing exercises – all at the same lecture. This, continues Kugel, can improve the students learning and promote a deeper understanding. Additionally, Halonen (2014) points out that one should be aware of one's own preferred learning styles and not only cater to those when teaching.

Students should be looked upon, not as passive listeners, but as active co-creators of their own knowledge. By engaging different aspects of thinking and encouraging students to actively process the information given to them a more in-depth learning is formed (Kugel, 1993; Halonen, 2014; Weinstein et al., 2014). For example by persuading students to paraphrase, which requires advanced cognitive processes, we promote their learning (Weinstein et al., 2014).

Weinstein et al. (2014) mentions that expertise within an area is distinguished by an organized knowledge base, since this is essential for integrating new information. The main task for a lecturer should be to create an overview of the field at hand and thereby assisting the students, helping them to incorporate the new material into their own knowledge. One aspect of creating an outline of a topic, that Weinstein et al. (2014) mentions, is by pointing out its domain-specific terminology. This coincides with Kuhlthau's findings above on *information vocabularies*.

In relation to this, Weinstein et al. (2014) also write on the importance of helping students to set goals with their studies. Meaningful goals will improve student motivation and therefore also the effort they put into learning. Only the students themselves can set these goals, the objective for us in teaching position is to make students aware of their educational ambitions and to put these into a syllabus perspective. Azer (2009) arguments that a lecture should be clear in structure and that the relationship with the curriculum is explicit. This will ensure that the students will be able to understand the information better, and be more motivated throughout the session.

The timing of the lecture and its relation to other student activities is of importance. Knowing the structure of the curriculum is helpful in creating a positive teaching session (Azer, 2009). If, for instance, an information seeking lecture is held close to when the students are going to write a paper, they will be able to put their new seeking skills into use – putting theory into practice. This both encourages a deeper understanding of the information seeking process, as well as it is equipping the students with important tools to use with their assignment. I've experienced that to point out this last detail at the beginning of a lecture increases the feeling of relevance which motivates the students to take an active role within the lecture.

Improving students' information literacy

As an academic librarian I hold lectures and workshops at the university. I also create web-based material that is supposed to guide users in the information seeking process. These efforts all converge into my main task which is to improve the students' information literacy.

The focus of this paper has been to reflect on how information seeking is perceived by students and, with didactic research in mind, how my own teaching best should be conducted.

In respect to research considering threshold concepts within information literacy and how learning and teaching works within higher education I have collected some practical advice that I already have begun using or in the near future will incorporate into my teaching.

These practical guidelines are following:

- Offer an easy-to-follow structure and thereby help students to organize their knowledge.
- In relation to the guideline above: have explicit goals that motivate the students to engage in the learning process.
- Use different teaching methods, appealing to different learning styles, such as narratives, metaphors, examples, pictures, models, et cetera.
- Pay extra attention when explaining the threshold concepts of information seeking, that is: the environment, structure and vocabularies of the information. Point out that these key ideas are thresholds concepts and might therefore be hard to grasp at start.
- Encourage students to paraphrase the information handed to them, thus promoting deeper learning.
- Connect the lecture with a paper or similar student assignment so that motivation will increase and theory will be put into practice.

Summary

The ideal way to teach information literacy is by using diverse teaching methods. To merely hold a lecture where one talks constantly the entire session is not as fruitful as letting the students in on the process and let them take part in the discussion. In order to encourage students to be active, which promotes deeper learning, one should plan to leave room for discussions, exercises and questions where the students will be able to paraphrase the lecture content, formulating their own ideas.

It is also important to put the lecture into the curriculum where it is useful, hence increasing relevance and student motivation. At the beginning of the lecture, be clear about why an information literacy session is held at this moment in the curriculum. A comprehensible structure is beneficial not only on course level, but also on lecture level. Information is organized better into students' knowledge structure if they know where to put it to begin with.

Since certain aspects of information seeking are constituted by threshold concepts one will have to put in extra effort when helping students to grasp these concepts. The structure of the lecture could very well be organized with these key ideas as main points.

Future research

The focus of this paper has been on the information seeking part, but other aspects of information literacy should be studied. For example how information evaluation is changing as one gets more familiar with a topic.

Personally I would also like to examine how students perceive my teaching. A quick way to get their feedback would be by handing out a minute paper or a poll of some sort.

Since time, and lack thereof, has limited me in my own information seeking I would really like to read or write a systematic review of research focusing on teaching information literacy in higher education. There's an abundance of articles and books on the matter and I feel as I've only grazed upon the matter. Which is a bit ironic since this feeling indicates that I am going through an anomalous state of knowledge myself.

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