

Information Literacy and Digital Literacy

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Resumo

Este artigo considera que "Literacia da informação" como uma competência académica associada com o conhecimento sobre as fontes de informação, "fonte de crítica", o pensamento crítico e a teoria do conhecimento. A partir de uma perspectiva de Ciência da Informação, deve ser definida em relação à pesquisa de campo. Argumenta-se que a questão central é a compreensão crítica da produção do conhecimento e seus argumentos e como permitir aos utilizadores uma tomada de decisão racional na sobrecarregada ecologia da Informação. A ênfase deve ser colocada sobre as funções do sistema de comunicação académico considerado sob as perspectivas sociológica e epistemológica.

Abstract

This paper considers "information literacy" as a scholarly skill associated with knowledge about information sources, "source criticism", critical thinking and theory of knowledge. From the perspective of Library and Information Science (LIS) it should be defined in relation to the research field of LIS: What we can offer and what we should offer in relation to this concept? It is argued that the core issue is the critical understanding of knowledge production and knowledge claims and how to enable users to make rational decisions in the overloaded information ecology. Emphasis should be put on the functions of the scholarly communication system considered from sociological and epistemological perspectives.

Palavras- chave: Literacia Informacional

Keywords: Information Literacy

Introduction

Information specialists have a natural interest in concepts such as "information literacy" (IL) and "digital literacy". We are supposed to be experts in information retrieval and should have a role to play in teaching concepts, principles, knowledge and skills to the people, who need to search for information. Therefore we need to know something about what users know and what they need to know. We need to understand and define *information literacy* and *digital literacy*.

There are a lot of different kinds of literacy at play, for example:

- 1 Information literacy
- 2 Digital literacy
- 3 Computer literacy
- 4 Televisual literacy
- 5 Audiovisual literacy
- 6 Technological literacy
- 7 Media literacy
- 8 Scholarly competencies

However, as pointed out by Buschman (2009) are such new kinds of literacy much like traditional literacy, why it may be a failure to consider them as basically opposed to traditional forms of literacy, as it is often done:

"The new literacies inherently rely not on print per se but on the cognitive effect of critical reflexivity of the "old" literacy per se." (Buschman, 2009, p. 110).

and

"[W]e should realize that we have to question the inherent claim or assumption that IL must of necessity distinguish itself from its history of bibliographic instruction (and its variants) by invidious distinctions with "old-fashioned" forms of literacy. This premise simply does not hold up upon examination since critical-reflexivity became the central point of efforts in dealing with information and information systems in all their formats." (Buschman, 2009, p. 110).

In developing our field, we have to develop a focus: What is – and should be - the special competency of information specialists, and how does this relate to kinds of literacy? I'll shortly introduce a view that is rather widespread in Library and Information Science (LIS) and put comments on that view.

Seven faces of information literacy

In her book *Seven faces of information literacy* (1997) Christine Bruce identifies seven categories of IL as experienced by Australian educators in two universities:

1. Information technology conception
 - using information technology for information retrieval and communication
2. Information sources conception
 - finding information
3. Information process conception
 - executing a process
4. Information control conception
 - controlling information
5. Knowledge construction conception
 - building up a personal knowledge base in a new area of interest
6. Knowledge extension conception
 - working with knowledge and personal perspectives adopted in such a way that novel insights are gained
7. Wisdom conception - using information wisely for the benefit of others.

Concerning 1) Information technology conception

Although LIS is different from computer science and therefore not that much about technicalities, it is very much about online databases and search engines. Some technological elements are necessary in order to understand mechanisms in information retrieval and search mechanisms. Core knowledge in

LIS is, however, rather about content, e.g. about how to evaluate retrieval mechanisms in terms of the relevance of what they deliver. This core is much more connected with fields like science studies and semiotics compared to pure technical aspects of computing.

Concerning 2) Information sources conception

This is very important from a LIS-perspective and includes issues like kinds of sources (and kinds of documents), different genres, qualities, intended audiences etc. Also questions concerning different views, biases and underlying epistemologies in the information sources are parts of this point, although very seldom considered in LIS.

Concerning 3) Information process conception

Here we might include the critical examination of knowledge claims, including examination of the methods, on which these claims are based and the underlying world-views and conceptions and keep trace of terminology, sources and “cues” that can help identifying trustworthy information. Again, in LIS this point is often viewed more from a technical point: About using computers for such tasks.

Concerning 4) Information control conception

This may include knowledge of “bibliographical control” of (lack of coverage) of search engines, of being critical concerning the information received and active in building a knowledge base. In short: Enable users to make actions that ensure that the relevant information is available when needed. As such this point is important. Which technology is used is, however, of less importance. (The best researchers are not the persons paying too much attention to the means at the expense of the content).

Concerning 5) Knowledge construction conception

Building up a personal knowledge base in a new area of interest is really important and perhaps best trained for obtaining this goal is writing independent theses in middle and higher education. This is not specific LIS-knowledge, but involves fundamental scholarly competencies in a field of learning.

Concerning 6) Knowledge extension conception.

This involves creativity and is a rather seldom academic gift which involves scholarly competencies in

a field of learning. Again this is not and cannot be specific LIS-knowledge.

Concerning 7) Wisdom conception

Using information wisely for the benefit of others is an ambitious and very loose and vague goal which involves at least point 6 + ethics + social knowledge.

As already stated I find that there is a need to connect goals of IL with what research and teaching in LIS can contribute (or can realistically develop in the future). From this perspective seems much of the existing literature on IL, including “the seven faces” not to be specific enough. I also believe it is important that LIS researchers do not consider users foreign species but apply the principles of IL also on themselves. We should not impose norms on other people that we ourselves cannot live up to. The proof of the pudding is in the eating and if our IL norms are fruitful it should be demonstrated by the quality of our own research. Otherwise we risk to put unnecessary burdens on other people not because the need them, but because we would like them to use our services.

An information science perspective

Information science is not the same as computer science or media studies. Information science grew out of scientific documentation and we may say that a central focus in this field has always been the scholarly and scientific communication system. In Hjørland (2002) I claimed that the special competencies of information scientists are related to 11 specific ways of researching knowledge domains:

- 1 Producing and evaluating literature guides and subject gateways,
- 2 Producing and evaluating special classifications and thesauri,
- 3 Research on and competencies in indexing and retrieving information specialties,
- 4 Knowledge about empirical user studies in subject areas,
- 5 Producing and interpreting bibliometrical studies,
- 6 Historical studies of information structures and services in domains,
- 7 Studies of documents and genres in knowledge domains,

- 8 Epistemological and critical studies of different paradigms, assumptions, and interests in domains,
- 9 Knowledge about terminological studies, LSP (Languages for Special Purposes), and discourse analysis in knowledge fields,
- 10 Knowledge about and studies of structures and institutions in scientific and professional communication in a domain,
- 11 Knowledge about methods and results from domain analytic studies about professional cognition, knowledge representation in computer science and artificial intelligence.

These competencies are of course much more comprehensive compared to the concept of “information literacy”. The basic elements: The understanding of the system of information sources and the kinds of “bias” in the system based on a sociological and an epistemological point of view are, however, the same.

The scholarly communication system has been modelled by, for example, the UNISIST-model, originally published 1971, expanded, updated and re-interpreted by Fjordback Søndergaard, Andersen & Hjørland (2003).

To understand the elements as well as the dynamics and the structure of scholarly communication as depicted in models like UNISIST is in my opinion an essential part of what we should mean by “information literacy”. Because these elements are increasingly transformed to digital media, is a central aspect of “digital literacy” also covered by such models from the perspective of information science.

To seek information is probably best understood as a (scholarly) method. What are the implications of this view? It is first of all opposed to a psychological view in which needs are "inner motivational states". This view is in my opinion mistaken, a kind of "ghost in the machine" (Ryle, 1949). Consider the expression "the car needs petrol". It is of course not an indication that the car has a feeling or an "inner motivational state." The meaning of the word "need" is that the car cannot do what we want it to do unless it gets some petrol. There is not reason to believe that the meaning of "need" is different when applied to human beings. We may say that a student may need knowledge about English grammar. Like the car, the student probably has no feeling that he lacks this knowledge. But his teacher may find that his written and spoken English could be improved if he learned principles of English grammar. The teacher may also convince the student about this need and then this need may become

conscious and an "inner motivational state."

It has important consequences for information science whether information needs are understood as inner motivational states or as a lack of subject knowledge. In the first case are some kinds of psychological studies relevant, while in the second case science studies and subject knowledge are relevant.

The implication is thus that the meaning of "information needs" and "information literacy" cannot be determined by psychological methods, but depends on arguments of a scholarly nature and is something that is more or less clarified in discourse communities. Different "paradigms" have different implications for what is needed and what kinds of qualification is needed for IL. It cannot be determined by people, who are not knowledgeable about and engaged in such discourses.

What knowledge can LIS contribute to this issue? Let us first consider the concepts of "bibliography" and "metabibliography".

Bibliography and metabibliography

Bibliographies are often useful sources to search information: Somebody has organized most of the information needed for a specific task. But how do you know whether a relevant bibliography exists? You may look it up in a bibliography of bibliographies (= metabibliography). Metabibliographies may again be found in meta-meta bibliographies, and so on.

In most real life situations is this a highly problematic way to seek information. Why?

Firstly because bibliographies are included in other bibliographies. One usually needs not go to meta-meta-bibliographies. Secondly because the primary literature via its bibliographical references is a more or less self-organized bibliographical system, which is often underestimated by LIS-professionals.

Bibliographical databases are important tools closely associated with LIS. It is the job of LIS-professionals to know about their strengths and weaknesses both as kinds of information sources and in the concrete (their quality regarding coverage, indexing and so on). In order to have such knowledge, information professionals must also know about the broader communication systems.

The scholarly communication system

It is important to know how knowledge is communicated and published: To know about kinds of communication channels, kinds of documents, genres, and so on. The UNISIST model could be a good starting place, but needs of course to be further developed and also modified in different domains (see: Fjordback Søndergaard; Andersen & Hjørland, 2003).

The UNISIST model is basically a classification of information sources in primary sources, secondary sources and tertiary sources, which reflects both chronological orders and bibliographical relations between kinds of sources. At the same time is the expanded UNISIST-model reflecting the relations between kinds of sources, knowledge producers, intermediaries and intended (or actual) user groups.

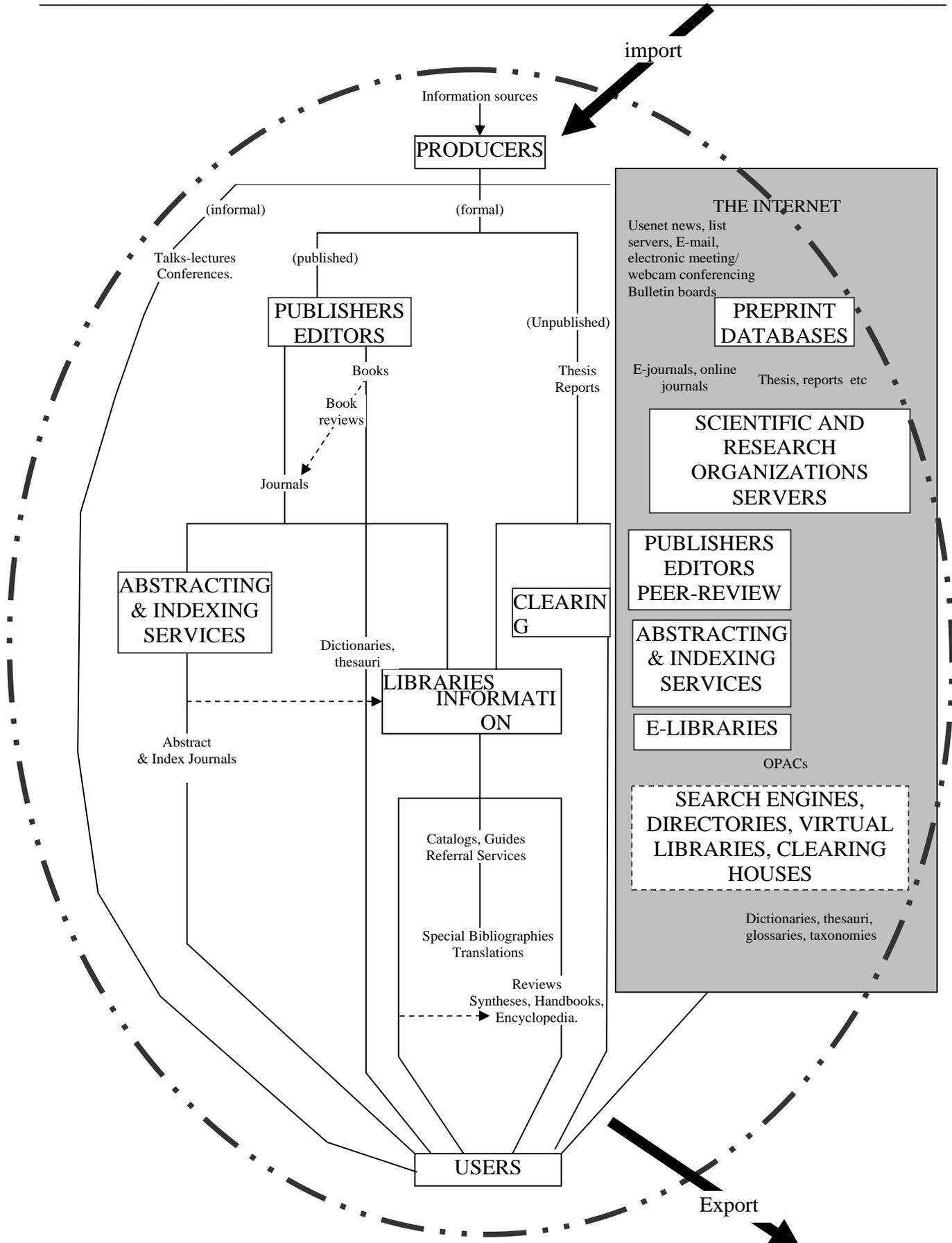


Fig 1: The revised UNISIST-model modified for the domain analytic approach

Retrieving information

To search information in electronic databases is a core skill of information professionals. Part of this should certainly belong to the concepts of *Information Literacy* and *Digital literacy*. Some elementary kinds of knowledge are obvious elements in retrieval skills: For example, the mastery of advanced retrieval systems such as Dialog.

One thing is, however, to know the command language of the system. Quite another thing is to use it professionally for a specific task. This last use requires knowledge of specific databases, genres and languages for special purposes (i.e., less technical knowledge, more content-oriented knowledge).

I believe that training to do (good) bibliometric studies is the best way to train information professionals to do information retrieval because it is very demanding in both technical aspects and more content/subject related aspects: Information professionals who master bibliometric research both technically and theoretically are in a good position to understand both *Information Literacy* and *Digital literacy*. However, the theoretical parts of bibliometrics are not well developed today and should not be considered in isolation from the broader field of science studies.

One important aspect of advanced information literacy is to be able to overview trends and see individual contributions in the larger picture. To work both with research problems and with bibliographical databases is an important dialectics between a narrow and a broad view.

Critical thinking

To be "information literate" is closely related to do "critical thinking". Critical thinking assumes that you critically examine knowledge claims, on what basis the claims are made, and whether alternative views have been published and need to be considered. Critical thinking acknowledges that different interests may always be at play, why they should be uncovered. To be "information literate" thus imply to relate to different epistemologies and "paradigms" and to make sure that the information sources used reflects an adequate perspective.

This is related to what might be termed "source criticism" in a broader meaning of that term (See Hjørland, 2008). We in information science should provide courses in how to evaluate information as part of our efforts to increase IL among users. "Information literacy" thus involves the ability to

consider principles of source criticism in relevant cases.

Conclusion

Information Literacy and *Digital literacy* are important concepts in Information Science. Like any other issues these concepts may be approached from very different perspectives. I have outlined my view of how I believe these concepts might be approached. The core issue is the critical understanding of knowledge production and knowledge claims and how to be able to make rational decisions in overloaded information ecology.

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