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Information Transfer Considering the Production and Use Contexts: Information Retrieval Languages

Abstract: Information transfer languages (ITLs) are languages of representation and retrieval of information production and use contexts to be used in digital library environments. Information transfer is defined here not only as a technical act but as a social act too, prevailing not the relationship among information system, document and user but the one between subjects that produce and use information. The justification for the construction of the ITL is that only thematic indication does not enable the user to achieve relevant information. The way seen to solve this problem is to relate the document properties with their production conditions and with their possible practical applications. It is acknowledged here that the document producer has certain communication intentions, in accordance to his social activities; and the document user, has information necessities in accordance to his action context. My thesis is that making these communication intentions readable to the users, they will be able to choose the information set most useful to their praxis.

1. Introduction

This paper derives from PhD research which seeks to establish the basis for information transfer languages (ITLs), languages of representation and retrieval of information production and use contexts to be used in digital library environments. Information transfer is considered here as a social act, being an intervention in the information's producers and users communicative actions, understood as language games.

2. Information Transfer

Information Science has emerged as a discipline concerned with the phenomena subjacent to information production and circulation and to the establishment of information transfer processes. But, information transfer is, in general, understood by the information scientists as a technical act. Hence, the users are viewed only as the ones that use the system and not the information, alienating them from the social contexts.

In this research, information transfer is viewed not only as a technical act but as a social act too. So, what will prevail is not the relationship among information system, document and user but the one between subjects that produce and use information. The document is produced by someone who is a member of a certain linguistic community, with certain communication intentions. The user, a member of a certain linguistic community, has information necessities imposed by his action context.

Information transfer is here understood as an intervention in certain communicative actions that occur between information producers and consumers. According to Ingran (1987,32), one communicative action is an aspect of the social life that corresponds to the language: it is the establishment, through communication, of a shared sense of meaning and value. Intervene means to establish mechanisms of information representation and retrieval to guarantee that the communication between these actors could occur effectively.

Information Science, then, does not itself realize communicative actions but defines ways to intervene in these actions, positioning itself between the information producer and the
user. Hence, before implementing ways of intervention, we must understand how people relate among themselves to share knowledge and experiences. I believe that our intervention qualities are related to the knowledge of these communicative actions.

The way chosen in this research to study communicative actions was through the philosophy of ordinary language as developed by Wittgenstein in his «Philosophical investigations». According to him, there is not a language essence because it is regulated by the use imposed by the human way of life. Language is a communicative action instrument, which is realized through language games. Language games are part of our way of life because they occur in the social context we live in. A language game is a combination of words, attitudes and behavior, comprehending the language use process in its totality. Hence, the words could not be understood outside the context of non-linguistic activities.

Wittgenstein criticized the philosophical trend that defined language as a means of reality representation. To him, language is a means of expression and communication. This suggests that the meanings of words are not pre-established. In contrary, the meanings of words are established by use. The way chosen to define what kind of use will be considered and how can it be characterized, was the activity theoretical approach to Information Science as developed by Hjorland (1997).

«The activity-theoretical conception of subject is pragmatic in that it views cognition, knowledge, knowledge representation, and subject analysis in their functionality, their teleological and goal-oriented nature, and their consequences for human practice. It is opposed to short-term pragmatism that only tries to determine the use of documents in direct relation to some human practice. It is not only concerned with the actual practice and its immediate or proximal determinants in a narrow perspective, but also with the whole ecological and cultural system in which the concrete activity takes place and which forms the distal determinants of the actual activity.» (Hjorland, 1997, 83)

Activity theory stresses:
(a) the ecological and social nature of meaning. "Meaning is linked to the division of linguistic labor in society...A person's use of a term may be determined not by his individual usage, but by the usage of some social group to which he semantically defers." (Hjorland, 1997, 81)

(b) the fact that the developments of meanings are often tied to the development of the means of production, to the social division of labor, and to economic influences. "Society consists of many 'discourse communities', which develop their own special languages, their kinds of documents, their information systems, their institutions, and their professional roles to maintain their function." (Hjorland, 1998, 11)

Recognition of the context for the activities of information producers and users will be achieved by an epistemological analysis of subjects in the documents, that is the way in which society and institutions generate, communicate and use information

«From the point of view of activity theory, a concept has been given many meanings from different groups and theoretical influences. An individual person acquires many different meanings simultaneous from different contexts...Such meanings can be more or less in harmony or in conflict. To learn about an object is not in principle to make an arbitrary connection between properties and concepts, but to understand the mutual historical developments of the objects and human practices. Concepts thus have 'historical depth' (Hjorland, 1998, 12)

Chalmers (1997, 46-63) explains that any scientific observation depends on a theory. This means that no observation can be neutral. No proposed language or description can be neutral. On the contrary, it has to make some values and purposes more explicit. In order to accomplish this, the subject description cannot be 'positivistic' but pragmatic. A positivistic analysis of a document is said to be objective, neutral and atomistic while a pragmatic epistemology tries to analyze the documents from the basic theoretical and ideological points

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of view.

3. Information Transfer Language

The justification for the construction of the ITL is that thematic indication alone does not enable the user to find relevant information, as Hjorland (1992,195) has stated:

«... the greater the mass of documents, the more necessary it is to describe their subjects on the basis of user needs (rather than properties of documents). The multiplicity of properties and relationship between them creates a surfeit that leaves the user unable to determine relevance by means of analysis of properties».

The way I see this problem being solved is to relate the document properties with their production conditions and with their possible practical applications. It is acknowledged here that the document producer has certain communication intentions, in accordance to his social activities; and the document user, has information necessities in accordance to his action context. My thesis is that making these communication intentions readable to the users, they will be able to choose the information set most useful to their praxis. The question that follows is how to make them available to the users.

According to the activity-theoretical approach to Information Science, each document fits in a scientific, political, or philosophical trend, and this trend will reflect the author's communicative intention.

According to Hjorland's subject theory (1997,40), the subject of a document is its informative potential, that is not acknowledged and described through a study of permanent, inherent characteristics of knowledge, but by a domain analysis that includes an analysis of the knowledge domain based on a philosophy of science and the sociology and history of discourse communities.

«From the domain analytic perspective, information-seeking behavior is perceived as stages in a cooperation process between producers and users of knowledge within the framework of disciplines or discourse communities. It is a type of cooperation that is often organized as a scientific discipline, where the goals and definitions are derived from the object of the research or the research problems.» (Hjorland, 1997, 137)

In order to perform subject-analysis, an information specialist must apply a theory of science perspective to that subject. Theory of science describes the overall perspective on the knowledge in these fields, connecting subject data with philosophical epistemology and the theory of science. It will not be done on a content related correspondence between the document and some pre-established knowledge categories, characterized as permanent, and inherent to the knowledge, but will be considered as the potential use of the document.

The main weakness of the former information retrieval languages is that they are concerned with the text and not the context. They are planned to intermediate the relationship between document and user through a formalized language-synthesis of both. These languages define a preferential way of information access, considering only the information content. Their builders search in the syntax and in the semantics for elements to help building their representation and retrieval languages. The language that is now being proposed, is supported in many aspects by the pragmatic theory of knowledge.

The main point of the pragmatic perspective is that the linguistic action is intentional. The information producer has specific communicative intentions and wants that they been acknowledged by the information user. The transmission of particular intentions is subordinated to general intention communication. If, on the one hand, the speech acts are intentional, subject to communicability conditions, and on the other, they do not exceed the action paradigm, that is, the production context of my discourse is conditioned by the linguistic actions of the others involved in the communicative situation.
The ITLs are not concerned only with the document content, because the information transfer process is not considered through documents themselves but through the communicative action between information producers and users. So, information transfer languages are not only a new denomination but a new conception, because they are concerned with communicative action sub-languages and not only with the language as expressed in documents. The languages built up to now to cope with information transfer are document-oriented, discipline-oriented, or question-oriented, trying to construct a synthesis of them through a language of the information system. These languages stay away from the information transfer process as a whole, i.e., the communicative action between authors and readers and the institutional, social and cultural conditions they are inserted in.

The ITLs will intermediate the information producers and users having as a basis specific discourse communities sub-languages, because a communicative action language is not a synthesis but various sub-languages in accordance with each discourse community. The ITLs will try to represent these various discourses having as a paradigm the activities sub-languages.

Value-added information given by authors and publishers (such as titles and abstracts) has been over-emphasized instead of establishing value-added to the information according to the user needs. Information transfer languages recognize that users are heterogeneous and intend to be a non-uniform dialogue instrument, not defining a preferential way of access, but seeking to foresee the various access possibilities, considering all the relevant access points to the needs of each user group.

Increasingly technological development has augmented retrieval possibilities. As a consequence, as Hjorland (1997,22) has stated:

"There is no sharp borderline between subject access points (or subject access data) and other kinds of access data. What are the most relevant access points depends on the nature of the question at hand. The core problem of IS is to help searchers optimize the given information and to help system designers to optimize the amount of work put into database building. The core problem is a theory about explicit and implicit subject representation".

4. Digital Libraries

According to Bishop (1996,304), "The term 'digital library' is by no means clear, and it exists alongside such other terms as 'electronic library' and 'virtual library'. The range of meanings attached to it go from any texts published electronically, especially on the Internet/Web to specifically labeled special-purpose efforts to digitize collections to in-library supplements to paper materials, including CDROMS, OPACs, online abstracting and indexing services, and digitized full-text materials."

In terms of digital libraries, the concept of 'information place' is changing to 'information space'. This means that information access can be remote, trending to increase this kind of access. As a consequence, users will be unknown. The way seen, in this research, to remain user-oriented is through the acknowledgement of users activities context.

5. Conclusion

Traditionally, users and the information they search are analyzed in a positivistic way, this means that they are considered objectively and atomically. As a consequence, they are alienated from the context of their activities.
This research proposes to make accessible information theoretical context and user cultural context. The recognition of the information production context will be achieved by an epistemological analysis of the subjects of documents. According to the activity-theoretical approach to Information Science, each document fits in a scientific, political, or philosophical trend, and this trend will reflect the author’s communicative intention. Making these available to the users, they will be able to choose the information set most useful to their praxis.

References