Nair Yumiko Kobashi, Johanna W. Smit and M. de Fátima G. M. Tálamo
Department of Library and Documentation Science, University of São Paulo, São Paulo, Brazil

Constitution of the Scientific Domain of Information Science

Abstract: Objectives: To delimit the epistemological parameters of Information Science on the basis of the terminology it employs. Starting from the hypothesis according to which the “central” terms should be characteristic of, or specific to, the area, making up the hard core of Information Science, while the “peripheral” terms would have originated from other knowledge areas, with which Information Science interfaces. The study is justified in that Information Science is a scientific domain in development, which does not present consensus as to its object and does not clearly define its boundaries – or interfaces – with other areas of knowledge.

Methodology: The terminology utilized by Information Science borrows terms from the areas of Logic, Administration, Linguistics, Computer Science, Sociology, Communications, Cognitive Sciences, as well as the terms coming from Librarianship. Research was therefore effected on the basis of the following terminological procedures:

a) delimitation of the domain: initial set of terms
b) selection of bibliography
c) development and filling in of research forms
d) development and filling in of terminological forms
e) consolidation of terms (vocabulary)
f) elaboration of definitions.

By means of these procedures, the domain’s “central” and “peripheral” terms were detected.

Results: The analysis of terminology permits the following provisional conclusions: the central terms, and therefore those specific to Information Science, come in large measure from the area of Librarianship and today constitute the field of “Information Organization and Representation”, while terms originating in other areas were not, in the majority of cases, submitted to processes of adaptation, sometimes maintaining their original meanings, but more frequently the terms were adopted while their original conceptual structure was abandoned.

The paradox may be stated thus:

- The interdisciplinary character of Information Science is clearly upheld in the majority of discourse, or practically consensual, from the 90’s;
- Information Science, taken as area of management of recorded memory, emphasizes its importance on the modern and post-modern stage of the social sciences, but rarely proposes itself as a science that discusses principles or laws, in function of its history: the history of Information Science is systematically suppressed in the name of its underlying modernity and technology, or on the other hand assimilated into the history of Librarianship;
- Although Information Science, as an applied social science, does not coherently mobilize the characteristics of a fully fledged science, it proclaims itself as an area that aspires to intervene practically in society through the optimization of the information flow and the democratization of access to information;
- In spite of the almost exclusively argumentative investment in the social and scientific character of Information Science, the real conceptual investments were made in order to
optimize the internal procedures of the area, in their majority originating in Librarianship and Documentation;

- The discussion of the procedures specific to the area allows the recovery of the communicational dimension of information representation, but this discussion is still peripheral and viewed with doubt or suspicion by many authors. The communicational dimension of information representation is absorbed, and rarely discussed as a consequence of the logico-linguistic dimension of information production and organization.

The identification of Information Science as a knowledge domain implies the development of an individual terminology, critically discussed and systematized concepts: that is what we offer as a product of the present study.

1. Object and objectives

It is undeniable that the domains of communication and of information have advanced during the last century, but the constitution of the correlated scientific fields faces obstacles of various kinds. Among the most important of these is the lack of consolidation of the conceptual corpus used in the analytic and discursive production of these areas. Thus, when we refer to them, although there may be agreement that we are dealing with important practices, fundamental for the transformation of the world, as they are responsible for a culture which subverts the traditional typologies of the manner of knowing, we do not recognize the thought which constitutes the fields in question.

In the specific case of the Science of Information, its understanding as a scientific field depends in large measure on a nominalism, that is, on an instituted meaning form – the denomination Information Science itself –, whose reference, most often, refers back to the inter- or multi-disciplinary universe, that presents a not very distinctive character. In fact, such a situation does not resist enquiry as to what is the specific object of the field, which are the principal problems to be faced, its hypotheses and the nature of its procedures. Imprecision, in this case, results from the fact that one may readily replace the notion of interdisciplinarity with that of union or junction. Might not Information Science be a union of procedures from different disciplines with the single objective of developing a practice?

The relation between man and information is certainly older than the first library. But it is starting from this facility that specific social modes of reception of recorded knowledge were instituted: the library was a place of retreat, the place for rare works, the place of selection of order, that of the collection. Through this facility and its variations were established orders and forms of socialization and of use of stored information. Naudé said it in 1644 (Naudé, 1876) and Otlet in 1934 (Otlet, 1934). In spite of all the conceptual settling that this rich experience could have provoked, the disciplines involved ended up proposing practical notions, passing wide of a consolidated theoretical network. From the point of view of the strict link they maintain with recorded knowledge and its organization for socialization, Librarianship, Documentation and Information Science have presented too loose a terminology, sometimes stemming from terms borrowed from different disciplines, such as sociology, economics, computer science, psychology, etc. This mixed composition brings consequences. The terminological imprecision provokes not only impasse but also strongly collaborates toward theoretical retardation. As the disciplines take up their spaces in the universities, courses multiply, imposing manners of circulation similar to the other graduation courses,
the terminological problems pass into the foreground.

Starting from this context, the present project, still in development, proposes the question about the epistemological status of Information Science, observed from the terminological vocabulary it employs.

2. Methodology

It is a recognized fact that the denominations serve as reference for the determination of the vocabulary of a specialized field, that is, of the conjunction of significant forms that respond for the particular concepts from which the fields of knowledge are constituted (Cabré, 1993). In this way are integrated the special vocabulary, the concepts relative to the objects, processes and methods that permit the development of the investigation and the production of knowledge. As the concepts do not result from absolutely arbitrary conventions or from individual preferences, but from the relations between their characteristics and their pertinence to the domain, as starting point, a hypothetical and provisional configuration of the domain was determined. It is considered that Information Science is the discipline that operates with questions relative to:

- Production: identification of the explanatory codes of the contents recorded in the form of information (result of the operations on the recorded contents that appears in the form of socialized contents), articulation between the technological mechanisms and the production of information;
- Circulation of the information: social insertion of the information;
- Information consumption: conditions for reception of information, places, facilities and users; sociological, political and economic dimension of the informational activities.

The first stage in the investigation was dedicated to the identification of the limits of the area and selection of a set of denominations that take account of these limits.

The survey and selection of the bibliography, to constitute the terminological documentation involved:

A bibliographical survey in the LISA (Library and Information Science Abstracts) covering the period from 1972 to 2001. This first survey, deliberately broad-based, was operationalized from the start point of two descriptors: Information Science and terminology, detecting 90 bibliographic references in the research. This list was submitted to a selection, guided by the following parameters:
- texts which, in their abstracts, demonstrated conceptual and historical concern in relation to the area;
- availability of the texts;
- distribution of the texts throughout the period, a high incidence of texts being noted in the 70's and 80's;
- the co-presence of articles from periodicals and books;
- the language of the texts, discarding some references in Japanese, Chinese and Russian;
- the inclusion of authors considered "classic" for the history of the area, such as Buckland, Hjørland, Lancaster, Line, Liton, Rayward, Saracevic, Shera, Vakkari, Vickery, Wellish, Wersig e Yeuxiao. At this stage we were not concerned about including Brazilian authors, who were later added to the survey.
We worked, then, in the end with 29 texts.

*Reference works* – the dictionaries and encyclopaedias of the area were included, covering the period of 1973 to 1997. Special attention was paid to the "*Dictionnaire Encyclopédique de l’information et de la documentation*", organized by Serge Cacaly, and edited in 1997, which was compared with "*Terminology of documentation*" organized by Gernot Wersig and Ulrich Neveling for UNESCO, in 1976.

*Methodological documentation* – the terminological standards ISO 704, ISO 1087 and ISO 5127 underpinned the methodology of the investigation.

3. *Notional identification procedures*

From the bibliography 62 terms were identified in the condition of recurrent terms, and thus essential to the analysis of the notional field of Information Science. For these terms definitions were then gathered and a synthesis elaborated.

At the end of this stage of the research a test was carried out of the categorization of the notions of the area, according to their status in relation to the area of Information Science:
- notions of the area, laid down over time;
- notions of the area, semi-elaborated;
- notions of the common empirical experience;
- confounded notions.

**Notions of the area, laid down over time** – in this category are included the notions that designate the classic procedures and components of Librarianship, such as "classification", "library", "abstract", "documentary analysis" and "invisible college". However, although these notions present stability in their concept and tend towards univocity, it is interesting to note that these, in the main, are described by the procedures or by the components that determine their reach, but rarely by their pertinence in relation to the area. Thus "classification" for example, is defined by the procedure and by the instruments used, but not by its function in relation to the area of librarianship or Information Science: the "organization of information" is not, in other words, described as a means but as an end in itself.

**Notions of the area, semi-elaborated** – these notions, occurring with frequency in the survey, point to terms whose concepts still show great variation, in that the different approaches do not appear as effectively distinctive. In the bibliography, these notions are very often presented having various meanings, or approaches, but the differentiation does not imply schools of thought or different traditions, but a simple coexistence of a diversity of opinions. In this category may be included such notions as "need for information" (which does not discuss the difference between needs, demands and wants), "information science" (which accepts very different amplitudes when the term "information" is not attributed a definition specific to the area, and which differentiates it from the areas of communication or from empirical experience), "analysis", "search strategy" and "information retrieval".

**Notions of the common empirical experience** – Different notions – central to the area – are defined in a totally empirical form and therefore do not configure a terminology specific to the area. Thus, for example, the term "book" is described as a set of printed pages, linked together, containing at least 49 pages. The function of the book for the area, that is, as an information holder, is not noted, there being no
distinctive concepts of the book for the area of Information Science or of Publishing. When the definitions of “book” go beyond its materiality, they inscribe it in the list of sacred objects, worthy of worship, and the vagueness of the term remains as far as its insertion in the area is concerned. The notion “information transference” gives occasion to paraphrases but no distinct delimitation in relation to the area. The notion “subject”, in its turn, gives rise to definitions inserted in the area (principal theme of a book) or others, drawn from empirical experience (concept which introduces, justifies, proves or amplifies the principal theme of a work). The notion of “user”, very frequent in the bibliography of the area, does not have a distinctive definition, as it is considered synonymous with “reader” or “client of the library”.

Confounded notions – in this category we include terms “imported” from other areas of knowledge and not submitted to an adaptation to the area of Information Science. The notion “data base” exemplifies this category. The phenomenon of the terminological importation, very frequent in Information Science, indicates an area that maintains very close interfaces with a diversity of other areas of knowledge, but also permits reflections as to the reasons for the absence of “exports” of Information Science terms to other areas.

4. Final Considerations

In general, linguistic expressions are used in different ways. Observed through classical logic, such expressions have the function of letting us know the proposition, the idea, that is, the objective reality to which the concept refers, or allowing one to attribute it a judgement. However, in the ambit of the Human and Social Sciences, the ambiguity and the equivocation that distance us from the expression of clear and distinct ideas, do not result from an insufficiency of the language. One cannot eliminate from them the contingency the historical process and the social reality, in general the possibility of diverse interpretations, in majority based on experience.

In this context, characteristic of the whole controversy, the fundamental condition of logic – univocity – cannot be obtained. Thus the non-existence of an equal and identical range from beginning to end of the arguments is identified: the demonstration of the concept is not finalized, whether because all the criteria of applicability are not identified, or whether because the notions are still empirical.

In general, an elaborated conceptual system is not identified in the area. The conclusions are obtained by interpretation, that is, it is possible to attribute a hitherto unforeseen meaning to the notions. This is determined by the very nature of the information.

It is customary to consider as foundation texts of a scientific area, those which present a theoretical-practical base, supported simultaneously in a general and specific knowledge, in such a way as to propitiate the internal advance of the area. On the other hand, what is found in Information Science, are texts whose ends pursue self-legitimization: they attribute to the area an imperative social significance, present the methodological guidelines in a conclusive form, leading to a positive criticism that limits the proposal of controversial topics. (Day, 2000).

The domain of Information Science is not constituted only by referents with which it is concerned but principally by the focal points and instruments that associate these referents with situations that determine the field of production and
circulation of informational goods and services. This being so, the area finds itself between the totality of a compartmentalized discipline – derived from the experience of cultural life – and a project founded in partial sciences disconnected from one another. It is organized initially by means of a scheme of concepts linked to distinct domains and gains the specificity of situational discipline, when it proposes to represent the world in a certain way and intervene in it through certain social products and equipment.

Notes
1 Research developed with the support of the Brazilian National Council for Scientific and Technological Development - CNPq.

References