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Information Science and Cognitive Psychology: a theoretical approach

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Information Science and Cognitive Psychology: a theoretical approach

- In spite of the ancient roots of IS, it was only at the end of the 1950s that the term *Information Science* appeared in the literature, as a natural evolution from Documentation, boosted by the new Information and Communication technologies and by the development of scientific and technical information.

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- The event that marked the shift from Documentation to IS was the International Conference on Scientific Information that took place in Washington in 1958
- The expression, **Information Science**, was used for the first time in 1959 and in 1962 the same expression appeared in the name of an international meeting - the Second International Congress on Information System Sciences

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Information Science is that discipline that investigates the properties and behavior of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. It is concerned with that body of knowledge relating to the origination, collection, organization, storage, retrieval, interpretation, transmission, transformation, and utilization of information. This includes the investigation of information representations in both natural and artificial systems, the use of codes for efficient message transmission, and the study of information processing devices and techniques such as computers and their programming systems. It is an interdisciplinary science derived from and related to such fields as mathematics, logic, linguistics, psychology, computer technology, operations research, the graphic arts, communications, library science, management, and other similar fields. It has both a pure science component, which inquires into the subject without regard to its application, and an applied science component, which develops services and products. (...) Librarianship and documentation are applied aspects of information science.

Harold Borko (1968)

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- “in the development of Librarianship and Documentation [and we would add Archivistics] theory followed practice, neither directing nor guiding it”

(Emílio Delgado López-Cózar)

In fact, the professional activity stimulated reflection on the *praxis* and, consequently, the need for some kind of training arose, appropriate to such a professional activity.

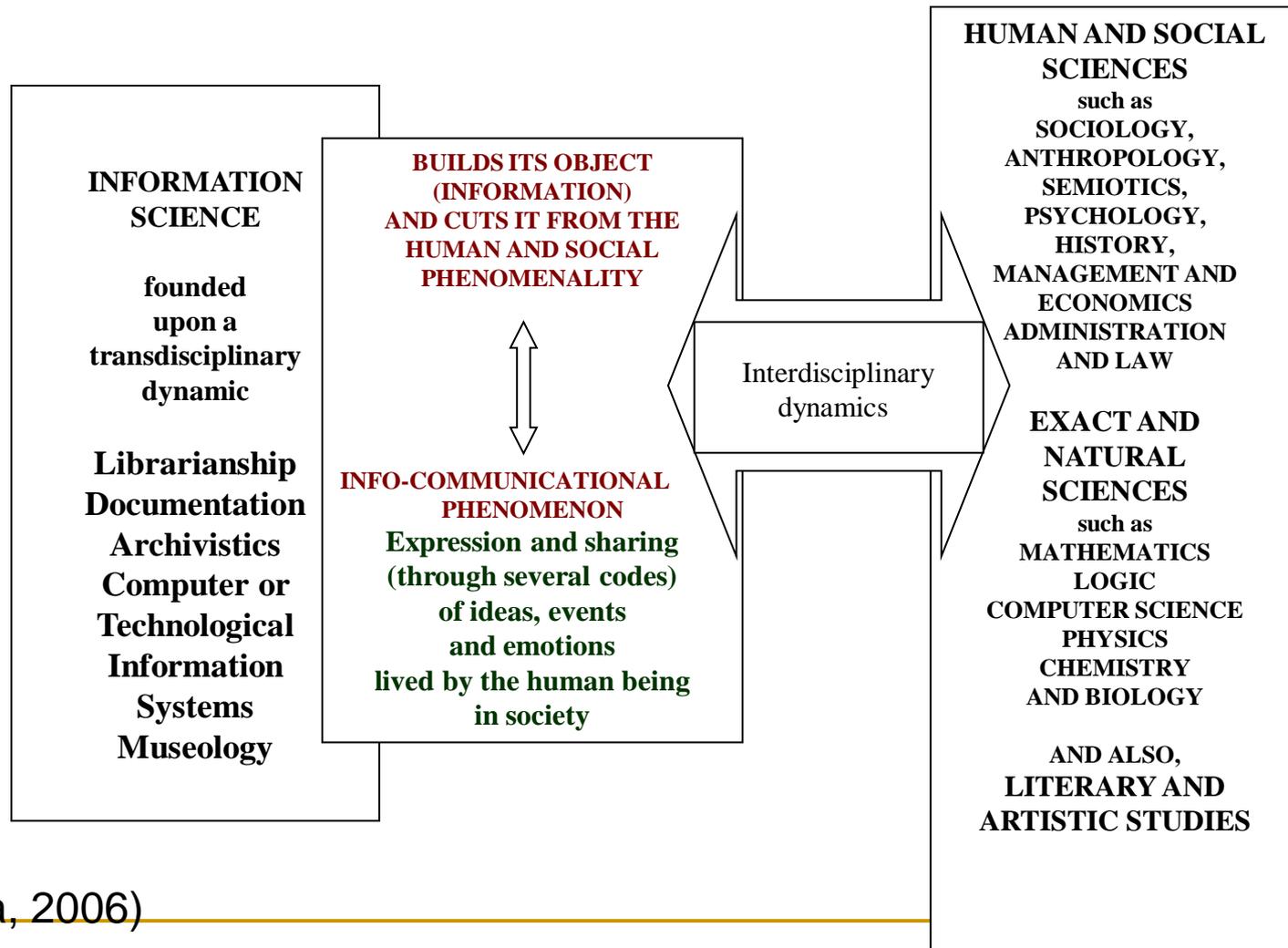
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The scientific construction of IS did not occur at the same time and in the same way in every country or context, which means that its degree of development is quite variable and reaching a consensus about this scientific field has proved quite difficult.

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- Archivistics has been neglected (or even self-neglected) and archivists have essentially been left out of the evolutionary process of IS, even though they try to show their scientific identity, albeit without a theoretical basis
- There is no scientific consensus about the epistemological unity of the field, which could contribute to an understanding of IS as an interdisciplinary field
- Some perspectives still persist, sustained by the traditional paradigm that considers only recorded information (=Documentation) as the object of study

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(Silva, 2006)

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- Besides establishing the boundaries of IS, it is also crucial to define its object of study and to assume a research method adapted to the characteristics of Information as a social phenomenon, emphasizing its qualitative component, as is appropriate in the scope of the social sciences

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Starting points:

- ***Information* is a structured set of mental and codified representations (significant symbols), created in a specific social context and capable of being recorded on any medium (paper, film, magnetic tape, compact disc, etc.) and, therefore, communicated in an asynchronous and multidirected way**

(Silva & Ribeiro, 2002)

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- Information is:
 - 1 – *structured by an action* (human and social) — the individual or societal act structurally establishes and models the information
 - 2 – *integrated dynamically* — the informational act is involved with, and results from, conditions and circumstances both internal and external to that action
 - 3 – *has potenciality* — a statement (to a greater or lesser extent) of the act which founded and modelled the information is possible
 - 4 - *quantifiable* — the linguistic, numeric or graphic codification is capable of quantification
 - 5 - *reproducible* — the information can be reproduced without limit, making possible, therefore, its subsequent recording/memorising
 - 6 - *transmissible* — the informational (re)production is potentially transmissible or communicable.

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- The assumption of social information as the object of knowledge has wide-ranging and unexpected implications. The main one is the emergence of a *scientific-informational* and *post-custodial* paradigm

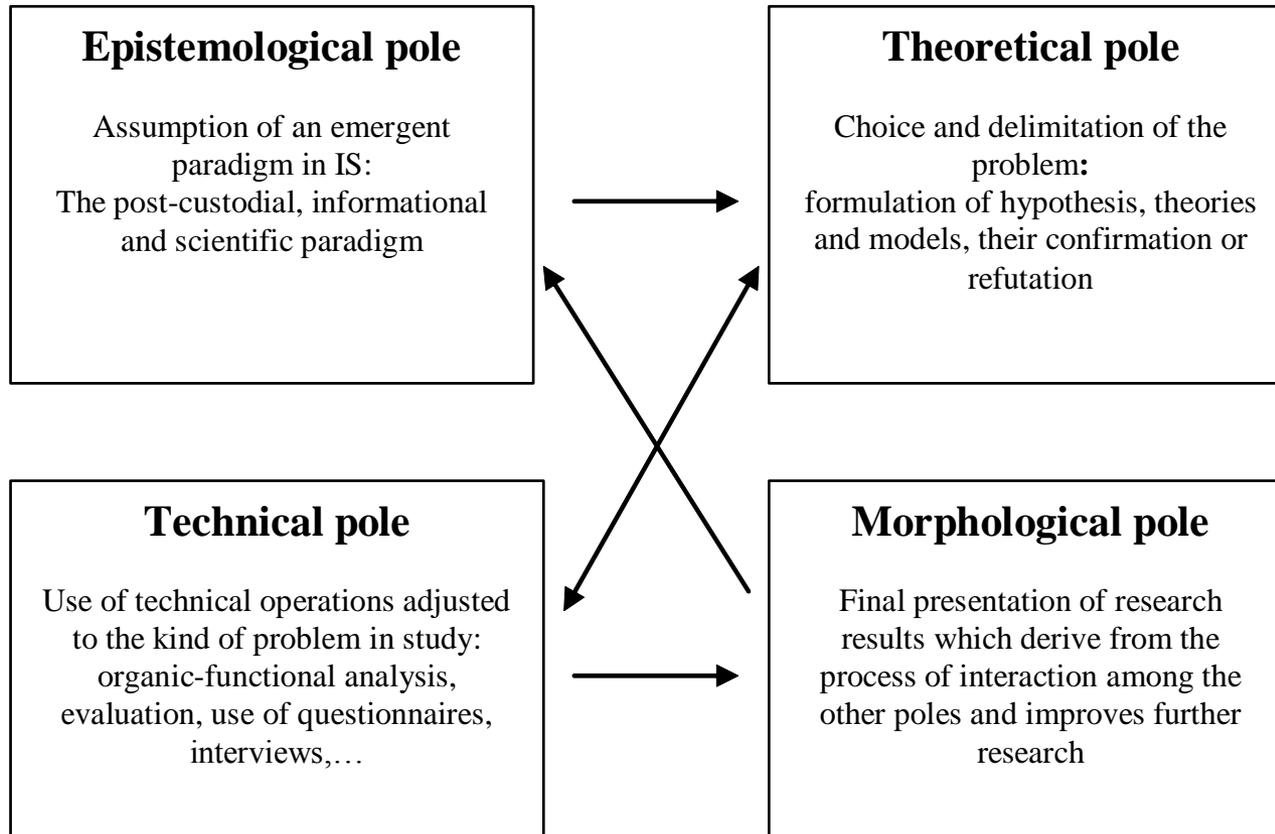
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- The *scientific-informational* paradigm is shaped by the following factors:
 - a) the value of information (and not the medium on which it is recorded) as a human and social phenomenon/process, with its own historicity (organic and contextual) and its cultural importance;
 - b) the statement of the natural and continuous dynamism of information in opposition to documental immobility;
 - c) the impossibility of keeping the traditional divisions of information according to the institutional or technological space where it is preserved (archival service, library or computer package) because such a criterion does not embrace the dynamic context of its production, of its recording and of its use/access (functionality);

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- d) the need to know (to understand and to explain) social information through theoretical-scientific models, increasingly more effectively, instead of an empirical practice reduced to a set of technical procedures such as arrangement, description and retrieval;
- e) the replacement of the process-oriented perspective evident in the terms 'records management' or 'information management' by a new scientific view that tries to understand the information involved in the management process of any organization; this means that the informational practices/procedures are aligned with managers' conceptions and practices and with the organizational culture.

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Quadripolar method of research: interactions between the four poles

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- This epistemological, theoretical and methodological foundation of IS, here briefly reviewed, is mirrored, obviously, in research projects, in educational and training models and in professional activities, developed in the most diverse organizational contexts and applies, obviously, to interdisciplinary approaches with other scientific fields.

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Some contributes of Cognitive Psychology

- Cognitive Psychology traditionally studied perception, memory structure and functioning and knowledge organization, in other words, processes involved, for instance, on reading, searching, assessing and treating information
- These actions are important when using complex and numerous information sources
- Nowadays it is also concerned with interaction situations where information becomes significant for individuals

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- Another field of Cognitive Psychology is the study of emotions, important components of cognitive activity. Seen nowadays as generated by our cognitive evaluations of the environment, they are also important in the way they interact with cognitive processing (e. g. Damásio, 1995)
- The developments on the humans' emotions knowledge underline most work on human-computer interaction that is currently being done. Although this area involves aspects like very technical issues, ergonomics, effectiveness and efficiency it is also concerned with psychology and emotions particularly in many works in Information Science (Saracevic, 1995)

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- The development of both Information and Cognitive sciences makes it possible to better understand, for instance, memory and linguistic human functioning and to use this knowledge to create powerful information systems related with new information and documentation practical issues
- Future practical applications of Cognitive sciences will allow creating interfaces to information technology more and more adapted to the demands of human cognition (Gärdenfors, 1999)

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- **Final remarks**
- The conception of IS that is being developed in University of Porto (Portugal) makes strategic and indispensable the construction of interdisciplinary approaches with several human and social sciences.
- There are themes and issues that can and must be deepened with the contribution of Cognitive Psychology, namely through research on users' informational behaviour and over the complex processes of post-custodial mediation.
- Some promising fields of work arose, which have kept a progressive interest and the attention of researchers inserted in academic post-graduate programmes.

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THANK YOU