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REFLECTIONS ABOUT DOCUMENT REPRESENTATION AND INFORMATION RECEPTION

REFLEXÕES ACERCA DA REPRESENTAÇÃO DE DOCUMENTOS E A RECEPÇÃO
INFORMACIONAL

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ABSTRACT

It presents reflections of documentary representation, relating it to the informational reception by the individual. The Information Science operates with the handling of documents with the concern of making the user informed, so that, from the information received is possible the generation of knowledge. The methodology used to develop this work consisted of bibliographic surveys in national and foreign databases, made possible by the Integrated Library System of the University of São Paulo (SIBI / USP). It was verified that there are relations between the concepts since the informational reception is optimized through the proper and reliable documentary representation, which goes through cognitive and compulsorily communicative processes for its appropriation. In this way, the intellectual, scientific, technological and cultural development of society can be achieved through the representative process. The act of receiving information does not necessarily imply the generation of new knowledge, but it is clear that the area of Information Science can help from the representation allied to the cognitive processes that involve human thought.

KEYWORDS

Information processing. Information reception. Cognition. Communication

RESUMO

Apresenta reflexões sobre representação documental, relacionando-a à recepção informacional pelo indivíduo. A Ciência da Informação opera com o tratamento de documentos tendo a preocupação de tornar o usuário informado, para que, a partir das informações recebidas seja possível a geração de conhecimento. A metodologia empregada para desenvolvimento deste trabalho constituiu-se de levantamentos bibliográficos em bases de dados nacionais e estrangeiras, possibilitados pelo Sistema Integrado de Bibliotecas da Universidade de São Paulo (SIBI/USP). Verificou-se que existem relações entre os conceitos uma vez que a recepção informacional é otimizada por meio da adequada e fidedigna representação documental, que perpassa processos cognitivos e compulsoriamente comunicativos para sua apropriação. Possibilita-se, deste modo, o desenvolvimento intelectual, científico, tecnológico e cultural da sociedade através do processo representativo. O ato de receber uma informação não propicia obrigatoriamente a geração de novos conhecimentos, porém é evidente que a área da Ciência da Informação pode auxiliar a partir da representação aliada aos processos cognitivos que envolvem o pensamento humano.

PALAVRAS-CHAVE

Representação documental. Recepção da Informação. Cognition. Comunicação.

Introduction

The informational reception category integrates several layers of society which, according to instructional levels and capacity for assimilation, generate knowledge to a greater or lesser degree. Such layers can be segmented into distinct levels ranging from the less favored bands that have few information access/assimilation resources to the more specialized ones such as university communities with their own terminology, language and knowledge in constant development.

Information circulates socially, that is, it acts as a flow that allows reception to generate knowledge, necessarily passing through the accumulated stock by the user. In this sense, the cognitive operation between the new information and the preexisting knowledge consists in the attribution of meanings.

Physical access does not by itself imply cognitive operation, that is, access must always be related to the user's value orientation and reception capacity. Thus, tasks such as interpretation, concept formulation and learning should always be associated with documentary representation and information search, with the receivers as the centerpiece of the systems, paying attention to the identity and purpose of the systems.

Although areas such as Communication and Information Sciences have for some time privileged the emissive activity, at the same time there is a concern with the reception category.

Information is not a *given*. It is constructed in the encounter between two dynamics: the dynamics of who "emits", who "enunciates" (the enunciator) and the dynamics of who "receives" the enunciate (the enunciate). It always occurs in a space where the positions of the "speaker" and the "listener" are exchanged, in a permanent set of forces (CINTRA *et al*, 2002, p. 10).

Addressing information as a fundamental input for the interpretative process is relevant because it brings together questions of transformation / reconstruction of knowledge, and it is predicted that it is impossible to establish meanings.

The works - even the largest, or especially the largest - have no static, universal, fixed meaning. They are invested with plural and movable meanings, which are constructed in the encounter of a proposition with a reception. The meanings attributed to their forms and motives depend on the competencies or expectations of the different audiences that appropriate them. Certainly, creators, powers or experts always want to fix a meaning and state the correct interpretation that should impose limits on reading (or looking). However, reception also invents, distorts and distorts (CHARTIER, 1999, p. 9).

Aware of these issues, it is the role of the professional to treat the information so it becomes available, obeying pre-established criteria to represent the documents (norms, procedures and own tools used and developed by Information Science) in a way that can evidence their contents. The methodology used for the development of the work and analysis of the materials found, consisted of bibliographical surveys in some of the national and foreign databases, made possible by the Integrated System of Libraries of the University of São Paulo (SIBI / USP), they are: Digital Library (BDTD), Reference Database of Periodical Articles in Information Science (BRAPCI) and Portal of Periodicals of the Coordination for the Improvement of Higher Education Personnel (CAPES). The texts studied are in the following areas: Information Science, Communication Science, Cognitive Science and Linguistics, and base the idea of tangency of the emissive and receptive categories. This work soon brings reflections on the representation of documents and the informational reception carried out from activities that permeate the user/collection interaction, ending with some considerations on the theme.

2 Representation of Documents and Reception of Information

The proposal of this study is based on the concepts of documentary representation and reception of information. For the former, generic activities/products of documentary treatment are employed, evidencing the representative element as the intermediary that "is in the place of another without stamp"; for the second, the approach is the nature of the user and the mode of informational appropriation, unique to each individual. This relationship is studied for the purpose of documentary product improvement.

Receiving information supposes, initially, that it is inserted in a device that allows it access. However, such availability does not guarantee informational appropriation and intellectual increment of users, since for the accomplishment of these processes a baggage of previous knowledge, besides the cognitive capacity of each individual, is necessary. "Once processed, the information submits to subjective judgments associated with intentions, uncertainties, meanings" (Tálamó, Maimone, 2012, p. 7). Thus,

[...] so that information can be processed by the individual, it must find in its cognitive network some point at which new information can be connected (encyclopedic competence) in order to locate the new information in a larger set the cognitive network) [...] presupposes the existence of prior knowledge (the cognitive network) as well as the willingness to change, complete or revise this knowledge (SMIT, 2012, p. 93)

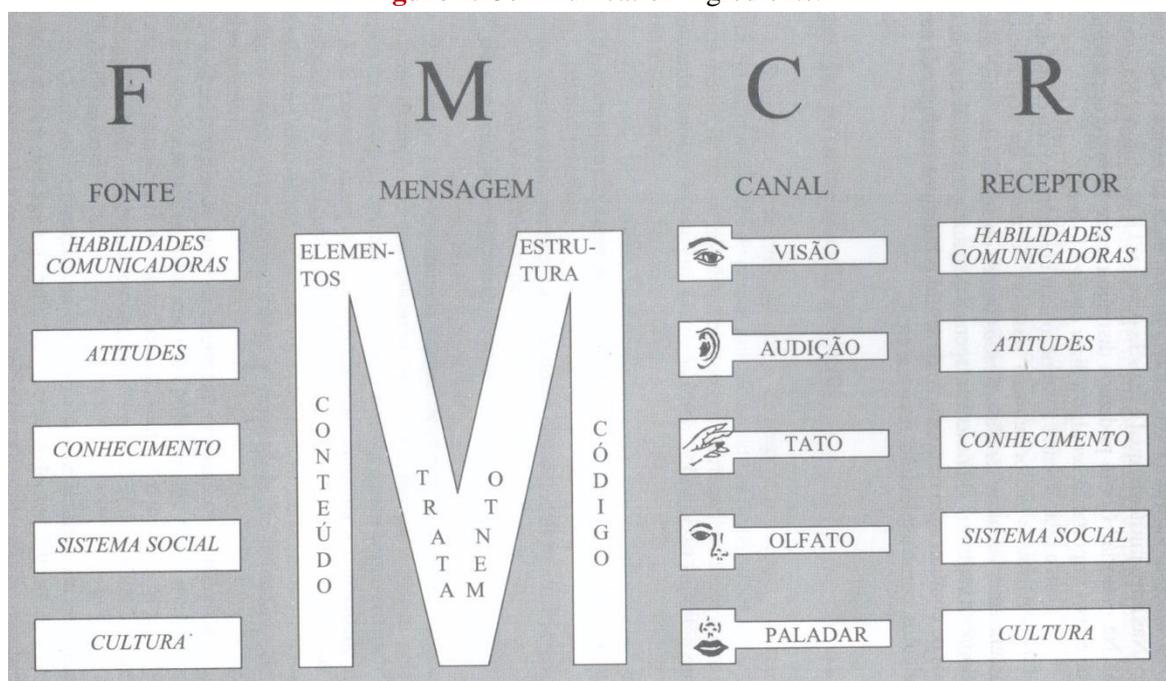
In order to emphasize the concept of information conceived for this work, the statement by Tálamó (2004, p. 1) is reiterated:

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Information is always flow and for the subject it functions as an exchange with the outside world, which gives it its social character. Assimilated, internalized and processed by a specific subject, it is the basis for its integration into the world.

Thus, information is an input and vehicle for generation/aggregation of knowledge. The user makes sense of information by receiving it and understanding it, a fact that, according to Pinto (2010, p. 6), "is based on their experiences, which in turn are based on space and time". Berlo (1999) in his book "The process of communication: introduction to theory and practice" summarizes in a table what the ingredients of information transmission, ie source, message, channel and receiver are, as shown in the figure below.

Figure 1. Communication ingredients.



Source: Berlo (1999, p. 74).

The source is responsible for encoding the message in order to make it accessible. In this case she would add the following factors that would increase her fidelity: communicating skills (writing, speaking, reading, listening and thinking), attitudes, levels of knowledge (general/specialized), sociocultural system of which she is a part (they determine chosen words, the objectives and the channels to carry out the communication). "The one who is the source in an instant has already been a receiver. [...] The same goes for the receiver, who can also be seen as a source" (BERLO 1999, p. 52). In this sense, the elements attributed to the source are the same for the receiver since for a better understanding both must dominate the same factors evenly.

The message *ingredient* is said of the "*real physical product of the source encoder*" (BERLO, 1999, p. 55) or, the speech, the writing, the painting, the gestures, etc. This conception is pertinent to the organization of knowledge in what refers mainly to documentary languages because it deals with questions such as code, content and treatment of the materials that carry the message. The choices of code (language), content and treatment (forms of representation) should be based on the user's knowledge, the collection and the institutional objectives. The channel¹ can be understood as the medium by which the message will be distributed.

It is possible at this point to make an analogy to the "functioning" of the central nervous system (synaptic transmission²) that works through stimuli.

The nervous system produces and regulates all aspects of the functions of the human body and its complexity seems infinite. Billions of neurons grouped together for different functions constantly check the internal environment of our anatomy and the outer universe: light, touch, pressure, sound, balance, images, concentrations of many substances, pain, emotion, consciousness (LOPES *et al*, 1999, p. 168).

For the functioning of the brain the presence of external "stimuli / impressions" (light, heat, sound, touch) is essential to verify the relation between internal (man) and external (world) environment (example: if we touch something cold we feel cold - result). In both cases, a push is needed for processes to take place. In the documentary case, information is the stimulus to knowledge, and the more impartial and trustworthy the original the greater the chance of success in recovery (outcome).

In an article published in 2013, Melo relates some cognitive processes with the purpose of assisting the thematic representation of information. Although quite relevant and in-depth we are particularly interested in an excerpt from his concluding remarks when he points out that:

One of the characteristics common to consciousness, attention, mental representation (schemas and propositions) and memory is its functioning through semantic and relational networks. This indicates familiarity of human thinking with connections with the representation of information that are structured in the form of networks, whether hierarchical or not. Initiatives of this type make intuitive representations of information under this principle and facilitate their understanding by the user (MELO, 2013, p. 78).

It is possible to deduce then that the concept of network (relational and semantic) permeates every process of informational interpretation/representation that evidences some documentary languages (thesauri, ontologies, semantic web) are based on this type of

¹ In Information Science the channels are presented from informational systems.

² "Mechanisms that characterize chemical communication between neurons" (LOPES *et al.*, 1999, p. 168).

structuring, as well as other tools of organization of the knowledge. In this sense, the forms of information representation, if carried out resembling the human thought process, are more likely to be better received.

Among the main theories of cognitive development, we emphasize the information processing approach that deals more specifically with the question of textual comprehension that directly involves "semantic coding, vocabulary acquisition, creation of mental models and understanding of the ideas of the text" (NEVES, 2006, p. 41). Systems of classification, terminological operations for conceptual elaboration (thesauri), mapping of information (conceptual maps) are examples of these instruments in Information Science. Information processing "seeks to understand how information is interpreted, stored, retrieved and evaluated through the understanding of specific processes [...] such as perception, memory, inference, information evaluation and rule use" (ANDALÉCIO, SOUZA, 2008, p.76). Adapting the concept of cognition to the work of processing / representing the information Varela (2008) reveals that:

Cognition is a relevant knowledge so that the information professional can understand and delineate the user's trajectory in the information search process and the construction of the meanderings of cognition in the apprehension of knowledge (VARELA, 2008, p. 36).

This placement is important because it reiterates the primary function of Information Science, that is, to promote the user's encounter with information, since the "theories, methods and procedures that compose the corpus of Information Science are only meaningful when the user finds useful information" (VARELA, 2008, p. 40, emphasis added).

The studies of Venâncio and Borges (2006) that deepen concepts about situated cognition, reveal that one of the major contributions that Cognitive Science can offer to Information Science lies in the organization and treatment of information specifically regarding the use of systems, in the "formulation of the requirements for information retrieval" (VENÂNCIO; BORGES, 2006, p. 35, emphasis added). It is understood that such requirements would aid in the understanding of human reasoning in order to represent / structure / encode the documents to be found, and the search of the user would follow the same path.

Aware that the adequate representation of information can add value to the knowledge of individuals, Information Science must work in a related way to the needs of these remembering that only explicit knowledge can be treated. As Smit (2012, p. 85) explains:

[...] information, in order to be used by more people without limitations of time and space, supposes that it has been "documented", that is, registered. [...] Registered information is equivalent to the concept of document [...]. (emphasis added).

Besides this condition of "registration", necessary for the accomplishment of documentary activities, it is necessary to consider still the two great poles of the communication chain (emission and reception) as key pieces to the informational recovery.

The emissive and receptive activities are interdependent, they condition one another: when producing a message or text, the sender normally has to anticipate the interpretation-response of its receiver; in interpreting it, the receiver usually proposes certain hypotheses about the purposes of the sender, about the textual form and context, etc. (ABRIL, 1997, p. 22).

Therefore, there must be a semantic correlation between the issuer and the receiver, and the information professionals are responsible for issuing the documentary products to the public (s) (TÁLAMO, MAIMONE, 2012). "It is worth noting at this point that the meaning of the sender involves the notion of intention and the meaning of the receiver, the notion of value" (LYONS, 1977, p. 36). Thus, and as a consequence, "it seems reasonable, in a general sense, to say that the greater the surprise value of a particular news, the more significant it is" (LYONS, 1977, p. 45).

In the communicational environment, often dominated by mass media, a criticism enunciated by Lara and Thalamus in a 2008 article states that "the media standardize their audience as opposed to implementing a universe of alternatives, as it is supposed to be one of the functions of TICs³" (LARA; TALAMO, 2008, p. 3). It is argued, therefore, that the idea of uniqueness based on the similarities of individuals and presented as unique forms of transmission of the world eschews the linguistic diversity and the social heterogeneity of the peoples.

The reception category should assign meaning to the information received, since materials, although treated for a long time as only one-way carrier, are "plural and mobile" (CHARTIER, 1999). There are subjective aspects arising from the activity of interpretation, both on the part of the professional and the user, that must be considered and studied "understanding that the representation of information is a process that develops from cognitive actions" (SAMPAIO; DANTAS; NEVES, 2017, p. 29).

Therefore, the idea of organizing documents in order to prioritize reception should involve the analysis of the social context in which the message circulates, in order to define its representation more precisely, using, among other things, linguistic studies and terminology. The representation of the information is considered complex, since it passes through communication categories that overlap in the issue and the reception, affecting the social,

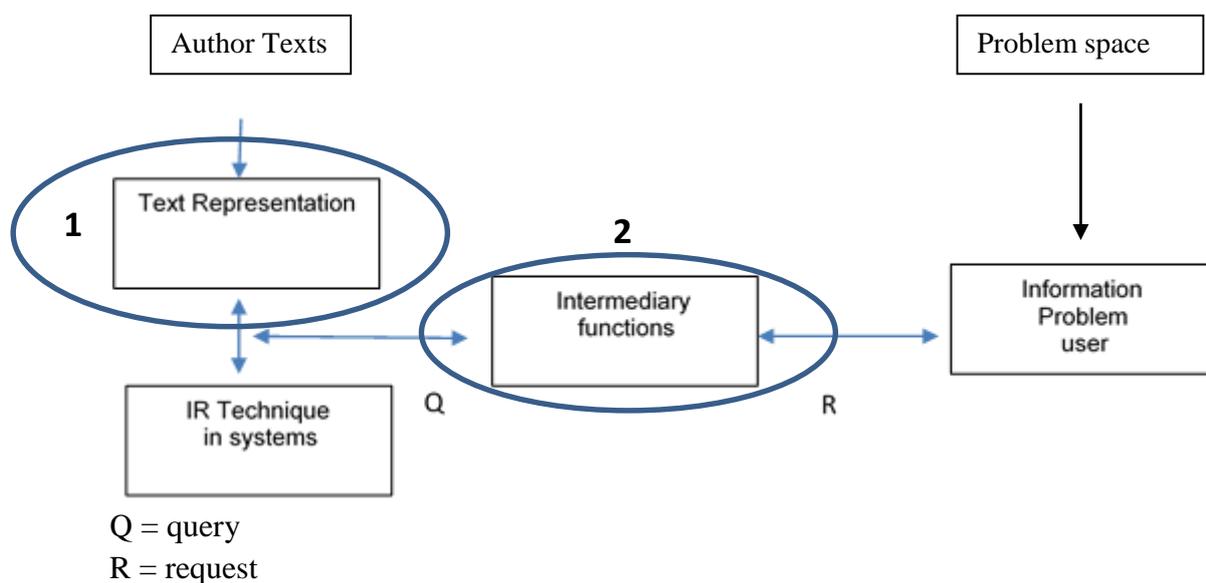
³ Information and Communication Technologies.

economic and cultural condition/formation of a certain public and/or public; in this sense, the information professional must carry out the processes of conscious representation of the situations and expectations of the users.

The commitment to describe a register of knowledge relating it to the social context in which its message will circulate is a recurring concern among professionals who organize information, however, it has not always been so (SOUZA, 2017, p. 27).

Based on the premise that the environment of any organization working with information is based on the user/document relations, the following figure is presented in order to characterize its stages in a simplified way.

Figure 2. Simplistic model of information retrieval.



Source: Adapted from Ingwersen (1992, p. 55).

This framework refers to the simplistic model of information retrieval proposed by Ingwersen and Wormell in 1989, retaken in article one of the first in 1992. Two major areas can be identified above: one specifically related to the user and his research problem and another to the documents (knowledge) and its forms of treatment for information retrieval.

It is particularly interesting to emphasize the elements marked with numbers 1 and 2 (in the table above, the result of the adaptation of the figure) that perform specific functions of the informational representation. The textual representations (1) are information taken from the document itself that allows access to its location through, for example: author's name, title of

the text, date of the work, subject, etc.; in addition, activities are also carried out such as elaboration of documentary summary and attribution of keywords.

The intermediate functions (2) are the recognition of the user's request, their "translation" to the system language (thesaurus, controlled vocabulary) and the search for the material based on the indexing language used. Techniques for retrieving information in systems relate to search operators such as Boolean logic or truncated search for example.

If steps 1 and 2 are carried out in an appropriate manner, respecting the type of existing collection and the informational needs of users, access to information will be assured. The cognitive action of information and the relations that it maintains with the accumulated knowledge is present in both stages explained above, since both textual elaboration and the attribution and standardization of subject terms need, among others, interpretation and contextualization always with the objective of users' informational desires.

The cognitive context applied to the field of Information Science presents a paradigm shift, previously focused on the collection and optimization of information processing activities, to

[...] a model focused on the subject / user oriented towards learning as a continuous process of internalization of conceptual, attitudinal, behavioral and skills fundamentals necessary for the understanding and permanent interaction with the informational universe and its dynamics (VARELA, 2008, p. 42).

Returning information as flow is possible to reflect on the dynamics that surround the reception process by reconstructing from the study of users, the conceptual interaction / articulation with the documentary products offered by information centers. The professional can appropriate the theory of cognition to understand the modes of learning and the intellectual skills necessary to make sense links between the document and the information to be produced. In this way, the intellectual, scientific, technological and cultural development of society can be achieved through the representative process.

3 Final Considerations

The documentary treatment, that is, that done on information is essential for the development of society because it is responsible for access to knowledge. Such activity results in documentary products (abstracts, indexes, references, among others) that favor this mediation. As already evidenced above the emission always brings with it a communicative intention, being that the value who offers is the user, that is, the reception. No matter how much one tries to fix a meaning, the meaning is always given by the viewer. In this case, the most that can be done is to "treat" documents reliably to ensure trust in representation services.

Approaching Cognitive Science of Information Science, it is inferred that the more similar to human thought are the documentary processes / products (representation) the greater the likelihood of success in receiving information by the similarity of the intellectual itinerary covered.

Regardless of the instructional level of users, documentary representations should be promoted that favor their reception. For this reason, it is essential to know the language and desires of information, since the receiver can be, at some point, emitter. For this it is important to establish feedbacks regarding the effective use of documentary products made available by the information systems. As previously explained, the act of receiving information does not necessarily imply the generation of new knowledge, but it is clear that the area of Information Science can help from the informational representation allied to the cognitive processes that involve human thought.

Far from the pretension of trimming all the edges pointed out by this work, investigative follow-ups are strongly recommended to improve and deepen knowledge in the interface "emission - treatment - reception" of information.

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