

Complexity and document: the hybridization of mediations in areas undergoing rupture

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Abstract

To complete communication between researchers studies and science popularization studies a new way in scientific communication is open by the author, the one between professionals and researchers. In this exchange area, often considered like a breakdown area, the information science research group of Toulouse University (France) analyse the hybridations in the mediations building. This posture allows to analyse numerous phenomenons and to reinvestigate the concept of document as a social construction.

Keywords

hybrid mediation; scientific communication; information culture; document; sharing of knowledge

Introduction

Countless research papers, in France, address scientific communication. However, they concentrate fundamentally on exchanges in the context of researchers, whether they are carried out in sociology or in information and communication sciences. Communication outside of this world presents a rupture of the exchange model. In fact, magazines and books which circulate in the world of research are inaccessible to the general public. The content and form of writing present themselves as foreign (BOURE, 1995). Therefore, there would be two very separate worlds. Nevertheless, there are works which show the possibility for a *continuum* and certain researchers make adjustments and move closer to the general public (VERON, 1997; JACOBI, 1999). The high level professional education offered by

French universities, though, takes researchers closer to professionals. Whether in preparing courses, locating internships in companies, ensuring continuing education, this proximity becomes ever greater. The documentalists employed in laboratories especially, and in a very natural way, are led to keep in contact with researchers and to share, at least to a degree, theirs forms of communication. Thus, the rupture between these two worlds seems less strong than in the remaining sectors. Would there be, therefore, transitions between the well delimited area of research and that of professions? How would they be established?

We attempt to explore what occurs on each side of this rupture in order to understand not only the impermeability between these two areas, but also the permeability. In doing so, we open a set of research work that

led a team of young researchers and doctoral students to enter into the complexity of the supports used in those exchanges. This attitude of explorers of rupture areas stimulated our interest in mediation forms, positioned as intermediaries between producer of knowledge and user. They rapidly revealed themselves in their hybridizations and their complexity and imposed following a third path of scientific communication. The richness of developing this approach is reintegrated in research that, although seemingly more classical, on the organization of knowledge and the information culture, seem to us renovated. These investigations are conducive to, then, stating more clearly the concept of document.

Mediation and hybridization forms Communication among researchers and scientific dissemination

Communication about research is a part of a researcher's work. It mainly pertains to allowing other scientists to become acquainted with research which precedes their own. It also pertains to protecting science's progress, for publication determines ownership. One also admits that publication permits attributing to authors the benefit of their creativity and of their production, which enables them to make headway in their careers.

The scientific field is, indeed, the space of relationships between acquired positions, where the innovative capacity contributes to social power (BOURDIEU, 1975). Authority is built through publication, especially in the more selective supports which, in general, are also the more prestigious (BOURDIEU, 1997). This form of scientific communication is named "communication among researchers" (BOURE, 1995) or "endogenous intra-disciplinary communication" (VERON, 1997). A group from the *Laboratoire d'études et de recherches appliquées en sciences sociales* (LERASS, University Paul Sabatier in Toulouse), gathered around Robert Boure, worked on this concept, giving rise to countless articles. Thus, the magazine was then studied as a support for scientific mediation from the point of view of its definition (BOURE, 1995), its evolution, with the transition from the printed support to electronic support, both regarding the consequences this technical change causes to ways of accessing the contents (COURBIÈRES, 1997), and the latter's elaboration forms (COUZINET, 1999). Some researchers, in other laboratories, studied specific subjects, for example, mathematics and informatics (RENZETTI & TÉTU, 1995). Additionally, it should be highlighted that research on the use of magazines by specific audiences has been carried out. As an example, we can mention those addressing doctoral students (COUZINET & BOUZON, 1997) or engineers (BÉGAULT, 2007).

Those diverse papers, which are aligned with the definition of scientific communication proposed by the *Dictionnaire encyclopédique des sciences de l'information et de la communication* (LAMIZET & SILEM, 1997), promote, as the latter does, an abstraction of researchers' intervention in a social sphere expanded to the people who belong to a different world. They establish boundaries between the

social world and the researchers' closed society. Another tendency that began to develop in the 1980's had the following question as a starting point: why do certain researchers also take a chance to disseminate science more widely? This question is based on the lack of rupture and, conversely, on a *continuum* between research and popularization, which was until then considered as a field belonging to journalists. Papers about those middlemen, between the researcher and the reader, gave rise to, in the sociology of culture, the paradigm of the "third man", perceived as a natural and essential intermediary in charge of "filling in the blank space between scientists and the general public, in order to reestablish communication that was broken down" (JACOBI & SCHIELE, 1988).

The multiplication of recipients possessing different cultural levels and practices from those of the researchers presupposes a rewriting which may not seem very familiar to scientists. The diffusion of discoveries and their possible applications is inserted into keeping acquired knowledge during education and in developing the ability to make decisions. It introduces the problem of sharing knowledge. A set of research work carried out by Daniel Jacobi (currently a professor and researcher at the University of Avignon) shows that this part of the researcher's work is little considered in the development of their career. They are interested in another form of recognition. This leads them to distinguish between levels of reception, of use and of accumulation of the symbolic capital (JACOBI, 1999).

Their research reveals the multiplicity of actors, both in the position of authors and of receptors. Suggesting the hypothesis of continuity of social diffusion practices and in integrating content, they establish the popularization in scientific communication and, in a broader fashion, the information and communication sciences. Yves Jeanneret proposed in 2003 a summary of several research works, with the issue of knowledge sharing as a starting point.

Hybrid mediations

The method of communicating science which was constructed in the world of research can, therefore, appear in at least two ways. One of them is targeted at the peers, the other at diverse worlds, which range from the general public to the public who have a certain cultural level. We would say it would be relevant to add a third path to these two. It is an intermediary position between the general public and the world of research. It belongs to neither of them; it establishes a connection between them. The professional world, whether it belongs to the private or to the public sector, is, in reality, the meeting point for those we can designate as "specialists". Practicing a profession is in a close connection with the knowledge acquired in the academic sphere. The practice of research depends more and more on its application, as well as on reflection landmarks, which they may establish for industries, teaching or institutions. How is this connection established? In order to answer this question, research was carried out at the LERASS, within a team

which used as a subject specialized mediations (*Médiation en information et communication spécialisées*).

The first observation field was that of information-documentation. The magazine of a reputable professional association, *l'Association française des professionnels de l'information et de la documentation*, ADBS, the books published, the relationships established with researchers and university teaching were all analyzed systematically over a period of 35 years. Research allowed the clarification of the complex exchange process, which was revealed to be multi-directional. Contrary to popularization, exchanges took place from researchers to professionals and vice-versa. There is a mutual support, however oscillating, depending on the strength of built networks and actors. There are multiple supports used: publishing of books, organization of common seminars, requests for expert reports, presentation of round tables, contribution to permanent education or publishing of articles. The grounds for comprehension are based on mutual understanding: the articles from professors who are researchers are revised by their peers and publications must contribute to raise the level of competencies of professionals and, thus, elevate it to the high level of qualification which is expected of the profession (COUZINET, 2000). If the interaction is abundant, it is also situated in the core of the problem regarding the references of positions occupied by each one of the partners. Observations show, indeed, that the professionals progressively adopt the writing rules of science. Scientists work so that their publications become readable to all specialists. Hybridizations surface. It is necessary, to understand correctly how such hybridizations operate, that the worlds in question are different. It is, therefore, inevitable to deepen the knowledge which can be obtained about one and the other, in order to avoid analyses and interpretation which remain too much on the surface of situations observed (COUZINET, 2003).

Those investigations lead us to question the scientific communication. Would it be possible to reduce it to communication between researchers? It seems to us, due to this research, that they cannot be limited to the world of science, for they would ignore the forms of diffusing knowledge in all their complexity. Therefore, this also pertains to considering the social context, such as the tensions included in it; it seems to us it is necessary to introduce the notion of mediation, to affirm the intermediary role of writing and support. It is thus possible to include scientific communication in a wider field, including then the popularization and hybridizations. This field, dedicated to specialized mediations, leads us to position our research in border areas, where interactions between different worlds become gradually more complex. They equally make it possible, while keeping their view directed to the information sciences, to cross it with that of the information sciences.

Complexity and sharing of knowledge Organization of knowledge

The MICS team, therefore, worked with mediations as a result of exchanges between professional groups and

researcher groups. Presented as a third path to scientific communication, this attitude, which aims to study the space for exchange between different professional practices and that specialty approaches as a space to construct knowledge, used as a starting point the observation of interactions between documentalists and researchers of information sciences (COUZINET, 2008). Little by little, other professional groups were also observed by the members of the team and by the doctoral students, such as librarians, artists, chemists, architects, heritage conservators, archaeologists... which led to the expansion of the work toward other issues and the construction of research subjects which are situated in the confluence of information and communication. This attitude turned out to be especially productive, in providing an original view on scientific communication and strongly including research, many times considered relevant solely for information sciences, in a connecting academic subject, the information and communication sciences, such as they exist in France.

In that perspective, the team is no longer limited to studying exchanges between professionals and researchers or to scientific communication. They have expanded their investigation domains and they direct their view to mediation forms in situations whose contexts are different and even opposing. The team focuses on the way in which, in order to facilitate mediation, knowledge takes place. Therefore, they are led to study in depth the fields which they will confront. The subject matter of research is built in the context of such confrontation, in order to understand how far the border that separates them can go.

The MICS team then proposed an approach to representations of knowledge organization, propagated by instruments such as classifications and thesauruses. Instead of considering them mere management tools of documentary funds or access to information, the target was the message they conveyed, the attitudes they reveal and the influence that, thus, they may have over users. The analysis of their composition shows a hybridization of the original project with social and political aspects, such as the will to propagate pacifist ideas (COURBIÈRES & COUZINET, 2006). The management aspects confronted with the communicational aspects bring a new view of these tools.

The team also studied the way in which the user is guided in the documental space. Combining literature, imagination and indexing tools, the spatial organization of documents enables the intellectual guidance (FABRE & COUZINET, 2008). Furthermore, the technique used by researchers to construct a documental language may allow the visualization of the outline of a subject under construction (COUZINET, 2008). We can also add, as demonstrated by undergoing research carried out by Caroline Courbières, that the instruments which organize knowledge can propagate stereotypes which reflect social spaces, as well as later participate in their construction and even bring them to attention.

Finally, the knowledge organization tools used in libraries and documentation centers are the mediation

supports in which the management project becomes more or less hybrid with other projects, with their author's acquiescence or that of the societies which produce them.

Information culture

Research carried out about scientific communication between documentalists and researchers generated a continuing deeper examination of knowledge regarding the professional world. In France, librarians are usually in charge of generalist and public libraries, essentially linked to the Ministry of Culture. The documentalists work in scientific or industry research sectors and often in private organizations. There is also a body of documentalist teachers in secondary education.

It would be interesting to verify the professional proximity between these three groups. A study carried out in 2004, from magazines that they published, brought to attention the lack of recognition of the information sciences as a reference subject, by two of those groups, that of librarians and that of documentalist teachers (RÉGIMBEAU & COUZINET, 2004). Other research reflected on the lack of connection with the academic subject and professional identity among documentalist teachers (COUZINET, 2002; COUZINET & GARDIÈS, 2009). Well, each one of these three groups participates in the education of users. The question which then concerns the two groups involved is the following: how do they transmit a culture of information that they themselves do not have? This question is especially important due to the fact that it encounters countless research work on the "information society". This pertains to addressing information sciences, a subject which has been placed in the front line of this global phenomenon.

If we look at the different formations in effect in countless countries and the definitions given, we can consider that the main concern lies on access to information. This access is considered in terms of machines available, of networks for learning procedures. Beyond the equipment and the techniques or the Internet's availability of all existing information (KERR PINHEIRO et al., 2008), the MICS team and their partners from Educagro research group (Université de Toulouse, Ecole nationale de formation agronomique) could show that it was necessary for educators to have a good knowledge of the scientific field of information. Research work on the organization of knowledge abovementioned attests that it is necessary to understand information as a means of power and influence, of social integration and personal attitude. This allowed the distinction between "informational culture" and "information culture", referred to more often in theories and included in a recognized scientific subject.

This research about information culture has also resulted in greater interest on cultural communication. Here, culture is seen in its diverse aspects. How can one harmonize the business culture and the academic culture? This is the situation in which are the young doctoral students who have obtained funding from the industry to

carry out their thesis work. The confrontation of those two cultures has led to the execution of a report which will enable mediation, here still hybrid, between these two worlds. This report should meet both the industrial demands, regarding diagnosis and application, and the academic demands, which establish the level of reflection and theoretical elaboration which is necessary to obtain the doctoral degree (MORILLON, 2008). It is also the situation in which foreign students experience shock in absorbing the rules for scientific writing from another country which is not their own. Research work has been carried out on the difficulties faced by Mexican students in France. They have pointed out the differences in the interaction with thesis supervisors in both countries and how the lack of knowledge oftentimes caused failure. In this domain of intercultural communication, hybridization is an obstacle to success in the university (CARIA, 2006).

The materials analyzed, transmitters of mediations, are written materials or images. They can be studied separately, at first, in order to obtain all necessary information in understanding the context presented. The second stage is the confrontation of situations. The approach through hybridization in mediations presupposes a fine analysis of materials. If the interviews carried out with those who conceived these materials are often necessary, the ruling method is still the analysis of documents.

Toward a document theory Returning to the notion of document

The position, which we consider central in information sciences, of this concrete object that is the document invites us to regard it as a priority in our analyses. It is indeed the way through which information, content, are shaped in the communicational sphere and it is, at the same time, the support which enables its circulation.

This notion was the subject matter of well known research work in information sciences. Presented by Otlet in his *Treaty of Documentation*, it was revisited and reworked by Jean Meyriat, especially in an article that, in France, is considered as the founding text on this notion and which determines its communicational dimension (MEYRIAT, 1981). It even reached the point where a specific science was proposed, the document science or documentation. If, at least in France, during nearly ten years, the subject matter "document" gave rise to few pieces of research, it regained researchers' interest with the generalization of information and communication technologies. However, it is essentially the technical aspects or the uses that, for the greater part, attract attention.

For our part, and in the sense of making a contribution to the collective elaboration of a document theory, we would wish to return to positioning equally container and content. Research carried out about hybridization led us to reflect on a type of use which was not much studied until then. Instead of presenting us the issue of user-reader, we presented the issue of user-conceptor. We then arrive at the distinction elaborated by Jean Meyriat. The document, intentionally, is that whose purpose is

to close deals, extract data; the document, attributively, is a support which contains information, but that was made with another purpose. Most of the times, it pertains to different material objects, which keep the records of a civilization, of an art in making or of a precise use. However, and there perhaps lies the essential element, there is no document in itself, or else, to return to the expression used by Jean Meyriat, "it is asleep". In order to activate it and to confer it with its function of carrying an informational content, it is necessary to question it. Therefore, the question or the interest attributed to the document somehow awakens and reveals it. The notion of information then changes. It is no longer restricted to content and is linked to a process, propelled by the will to acquire information. There is no document unless it is connected with this will.

If we are at its root, the moment we conceptualize the object which may become a document, it seems necessary to consider it as a result of negotiations. In writing, object or image, it is socially constructed and considers interests or diverse positions in well defined contexts. It is, thus, possible to think of it as a result of mediations which he shapes and secures. Placed between two situations, it is a witness of the interactions that caused it to arise. Thus, working on hybridizations led us to return to the notion of document and to take an interest in its capacity to produce indicators and to clarify the complexity of interactions. Working on a research material led us to question ourselves with regard to that material, on its productivity and reliability, comparing its usefulness for information sciences with that it has in history (COUZINET, 2006).

Device and documental complexity

The reflection made on the conceptualization of the document contributes to giving a critical view on its use as research material. It allows us to reflect on the construction of the corpus we use, to diversify it and establish limits for it. However, and because this subject matter is central in our subject, progressively it invites us to position it in an important place in our research and to multiply investigations. Indeed, it is possible to study it as an info-communicational device which has effects over users. We will develop here two aspects that, currently, attract our attention, one limited to the problem of building knowledge and the other situated in the sharing of knowledge.

In the domain of building knowledge, prolonging a thesis work, Patrick Fraysse focused on heritage (FRAYSSE, 2006). He observed, due to Jean Davallon's (2006) research, the way in which the document makes the monumental heritage. From images of dislocated or copied monuments, he showed how one can build a body of knowledge aiming to build a monument, which may seem insignificant in the status of heritage work. The info-communicational device establishes a representation which can be driven to specific aims, such as tourism, in certain cases studied. However, it also participates in the construction of cultural references.

Josiane Senié-Demeurisse directs her interests to the use of the document by historians to build history (SENIÉ-DEMEURISSE, 2007). A corpus of popularization articles which addresses topics of France's history that are often recaptured in history magazines enables her to work on the exploration of documents by researchers and the renovated use through disseminators. This leads to questioning the difference between material which is useful in rebuilding the past and evidence at the service of demonstrating a certain truth. Here, the document is the device whose function adapts to the form of scientific communication and its recipient, researcher or the general public.

In knowledge sharing, as in knowledge building, the document can carry several categories of meanings and functions. If we add its own construction and the context in which it arose, we will be facing a complex material object, which encourages a whole range of approaches. As a complement, studying it as a material which reveals mediations confirms the central position according to which we should consider it in our subject.

Conclusion

The third path proposed to the scientific communication and which allowed, at least partially, for the elaboration of the concept of "hybrid mediation" reveals itself as an open door which authorizes multiple investigations. Grounded on knowledge both profound and separate, at first, in zones undergoing ruptures which can be worlds, subjects, different representations, it needs long term research work. The comparative perspective and the detailed study of resistance, oppositions, as well as passages, inaugurate the analysis of hybridizations in all the complexity of its execution. Support to documental studies, naturally, invites us to return to the notion of document and to the attempt to collaborate with its construction as a central concept in this subject, without neglecting the need to build it critically as a material for analysis.

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