Users and librarians : communities dissociated by practice to bring closer by interest

Fabrice Papy[1], Sophie Chauvin[2]

[1] Université Paris 8, "Document Numérique et Usages", 2 rue de la Liberté, 93526 Saint-Denis, France, fabrice.papy@univ-paris8.fr
[2] Université Paris 8, "Document Numérique et Usages", 2 rue de la Liberté, 93526 Saint-Denis, France, sophie.chauvin@univ-paris8.fr

Abstract

The survey started in 2003 by our multidisciplinary research team in the university library of the University Paris 8 enabled us to consider differently - beyond technophily or technophobia points of view - the ICT integration in social environments. Focusing on the Web OPAC, it appears that ICT used advisedly, in the respect of social positions, can contribute to enhance a constructive synergy among librarians and users. In this context and under the pretext of a technological remediation, the "Visual... Catalog", raises questions about the appropriation and the transmission of knowledges put back in a global and nearly philosophical framework of acquisition, processing and accessibility of knowledge in Information Society.

Keywords: Hypertext, associativity, OPAC, Web OPAC , university library, Information sciences, Classification, UDC, RAMEAU, Visualization, exploration, community of practice, intellectual affiliation, interface, interaction.

1 Hypertext, ICT and academic Library : about accessibility

The research works underlying this paper are at the convergence of three domains : Hypertext (concept, systems and user interaction) (ACM 1988) (Clément 1995) (Giffard 1997) (Piotrowsky 2004), Information and Communication Technologies (ICT), and university libraries. These domains turn out for many ways but are overlapped today in the paradigm of Information and Knowledge Society.

The *Visual...Catalog* system refers to a research work[1] - still in progress and carried out since December 2003 - led by a multidisciplinary scientific group (Information Science,

[1] http://visualcatalog.univ-paris8.fr/

Psychology-Ergonomics, Didactic of Mathematics, Geography-Cartography) collaborating closely with the University Paris 8 library's staff[2].

The central aim of this research relates to a proposal of a technological remediation for the bibliographical database consultation (OPAC) based upon information accessibility and librarians' competences and expertises.

1.1 Previous works

This current work relies on scientific results of past works that have been undertaken over ten years - favouring an Information Sciences approach - on Hypertext concepts, hypertextualization process, information seek, web browsing, and finally the adaptability of aggregative digital contents intended for information intelligence and E-learning (Papy 2004) (Balpe 1996) (Papy 1993) (Papy 1991).

These previous works come within the general scope of Hypertext such as considered by V. Bush (Memex), T. Nelson (Xanadu) and D. Engelbart (NLS/Augment). Our preliminary research stressed on the spectacular features of Hypertext which, in socio-professional and characteristic cognitive contexts where users are familiarized with the information environment, offers a considerable alternative to the restricting mechanisms of computerized data processing (Papy 1995) (Le Quellec 1998).

Hypertext is another relationship to information whose the World Wide Web is the most direct heir : reducing the technical expression to mechanisms become invisible and assisting associations. Our works are followed by some empirical results on drawbacks of hypertext browsing whose unfamiliar users of hypertext networks suffer (in particular disorientation and cognitive overhead) (Brown 1989) (Castelli 1996) (Dinet 2001).

Of course, there is no question of refuting the inherent advantages in hypertext browsing which offers a major reconfiguration of the access modes of few structured electronic information. In return, there is no question of covering in an offhand manner the gap which separates the production, organization and appropriation of knowledge world from the one that relates to their accessibilty. The new form of technoscientific magic (search engines, directories, automatic categorizer, cartographic systems, adaptative agents,…), carried by the spectacular

[2] Université Paris 8 issues 150 national grades. Our university, specialized in Arts, Law, Social and Human Sciences welcomes 27000 students and 850 teachers (the library : 90 librarians, 320 000 documents, surface area 15 000 m2)

inferential processes of ICT tend to deceive us whereas the overall meaning of this endemic and unorganized production of documents, has to be questioned. So, data processing technologies, from now on, represent the unavoidable and powerful tools to restore order in the billion documents of the World Wide Web. (Flichy 2000) (Foenix-Riou 2000).

2 The university library: a complex multidimensional place

The universities libraries's missions are to make their resources available and useful for higher education's teachers and students (Jolly 2001) (Charte 1991).

These physical, digitalized, digital and institutional information spaces, visited by the technological mediation and thought to promote accessibility (Arot 2002) (Jolly 2001), offer generic models of knowledge organization that the classifications materialize (Dewey UDC, Bliss, LCC, ..). Even if they may be considered to be adequate, complex, practical, evolutionary, questionable, unsuited, etc., none of these classifications can claim to have achieved the unanimity. Nevertheless, in spite of their imperfections, the library's existence isn't possible without any classification whatever it is (Jacob 2001) (Hunter 2000).

The structured and rational organization underpinned by classifications aim at a will to universalize knowledge. The classifications end up producing a decontextualized approach of knowledge. More, this classification, without being the focus of the librarians' activity (users training and utility), represents an important part of library activities and materializes the appropriateness of the library with the students cursus and the researchers' scientific activities.

Through common Web interfaces (in particular Web OPAC), it is no more no less than the UNIMARC data structures, classifications (LCC, Dewey, CDU,..), RAMEAU[3] , which are suddenly bring to the appreciation of the overall inefficient users. In fact, the so-called accessibility carried by ICT highlights two juxtaposed communities' existence : on the one hand, users who seeks information but are not concerned by libraries' requirements and problems, and on the other hand librarians implied in professional requirements (accession, cataloging, utility,...). The mediation's promise conveyed by ICT isn't obvious in the way in which the university libraries computerization is carried out today.

On the contrary, ICT destined for users, reveal the differences but also specificities in these two communities : one composed of clearly defined professionals' missions; the other one of

[3] Répertoire d'Autorité-Matière Encyclopédique Alphabétique Unifié

users, much fuzzier which gathers together teachers, researchers, students, postgraduates with various profiles, multiple expectations and different intellectual affiliations (Coulon 1997) (Le Coadic 2001). Very rapidly, users are faced with their misunderstanding of the complex organization of library and conversely, librarian as for them, contribute to the knowledge secular organizations intended for ideal users (Le Marec 2003). The assessment of utility highlights that the improvement of the quality may be obtained by a subtle mixture : a better understanding of library mechanisms by users and a greater accessibility of its professionals'expertise.

Independently of the research tasks concerning the virtual communities appearing within the telecommuting framework, of the mobile work or e-learning, using the word **community** appeared to us more appropriate of the reality described here. We preferred this term at the word **group** which seemed to us too reducing and too far away from the idea of social cohesion. In a same way, the word **"collective"** didn't seem to us appropriate because bound to a specific engagement. We wish to keep the structural feature of the word **community** which suggests strong social concepts (Harvey 1995) (Harvey 2001) (Dubey 2001) (Castells 1998) (Cabin 1993).

2.1 The library: a knowledge place, a librarians' space

However the libraries, in spite of the technical accessibility introduced by ICT, remain extremely specialized places where librarian activities translate and reflect organization and communication methods, contexts, physical objects, mental representations, procedures, and systems of values (Polity 2001). Library seems much more as a place of contradiction where the organization in place strive to develop, to preserve a rational knowledge organization which is almost an ideal knowledge for a public (frequently) unaware of its requirements and subtleties.

Then, the university library appears as an tidy space, that users who practise it, made it cyclicaly untidy. Imagine an ideal user who have developed an expertise on the place enabling him to make a judicious use of the library fastidious organization, without disarranging neither its order nor its functioning, is an improbable fact. This ideal model of the expert user remains highly anecdotic and yields the place to the more common model of the neophyte user having elementary needs to locate a document and its availability. This gap which separates the effective user’s abilities and his supposed skills is confirmed by some studies (Le Marec 2003) (Coulon 1997).

2.2 Library, computerization and ICT

The libraries computerization started by the computerized catalogs thirty years ago (Lupovici 2001) carry on with ICT integration largely inspired by Web and Hypertext. These digital technologies influence pre-access of physical and electronic resources which compose today libraries hybrid funds. This instrumentalized and digital penetration in the libraries'world was carried out without determining study to prop up the fact that ICT improve subjects'cognitive activity. On the contrary, force is to note that confusion and cognitive overload end up inevitably arising to users even most experienced (Gasté 2001) (Tricot 1998). In this vein, one can only regret in France, the lack of assessment methods of user paradigm relating to the Retrieval Information System (RIS) (Chaudiron 2002) (Ihadjadene 2001).

This immediate proposal of ICT in the organized universe of libraries can appear to fit into a planned approach of computerization. However, the proposal of ICT modifies considerably the parameters of the initial program of computerization : from a logic of modernization of professional activities, it’s the "automation" of the users' information retrieval practice which is initiated. *Public Online Access Catalog* (OPAC) and their Web variants illustrate precisely this technological shift of the professional towards the user.

The online catalog is neither more nor less than one recombination of professional data emanating of these software packages, for which the only adaptation authorized consists in making invisible certain information to users. The data relating to accession or cataloging reflect many information produced by librarians for librarians, organized in data structures worked out by librarians.

The online catalog accessible inside AND outside of the library, constitutes a focal point and the library "synecdoque". While querying, the online catalog focuses the users' information needs. During the time of requests operated by means of the web interface, the user tries to reconcile his research targets, the technical mediation imposed by the interface and the modes of knowledge organization within the library (often imagined, frequently misunderstood).

In fact, this catalog represents a mainspring object, area of contact between two communities controlled by objectives, social cultural and cognitive rules quite distinct. Developed by companies, these systems are above all the computerized project making access to the resources proposed by the library, and this, independently of the socio-informational context (Chauvin 2004) (Roy 2003).

Querying the interface of the Web OPAC with an author's name ("Pierre Lévy") illustrates the shift effects of professional knowledges that the technological artefactualization brings

towards the users. However, these professional knowledges really come under an environment, contexts, implications, trainings, individual, collective and institutional choices which only preserve their meanings in the exercise of these expertise places, mainly in their professional dimension.

3 The genesis of the "Visual... Catalog" research project and hypothesis

The assumption that we formulated at this research project's origin takes support on the one hand on our former work on hypertext and on the other hand on teachings in information retrieval methodology provided under the angle of the students' intellectual affiliation (Coulon 1997) (Coulon 1999).

3.1 Success and student's intellectual affiliation

On this second point, it appears that the student's success lies certainly in his intellectual investment, but also in the implicit appropriation which goes with each cursus. The bibliographical work and more generally information retrieval - which replace the university library as a determining device in this process of intellectual affiliation, becomes an major activity in the university and intellectual success of the student.

Between the lines of this relationship to the intellectual affiliation and the learning of the student, the intrinsic activity of information retrieval exacerbates specific requirements :

- critical analysis of information (especially since the Web offers the best and the worst !)
- the students' cognitive positioning (are they able to adapt, on one's own, the knowledges ?).

3.2 The University Library: a determining place for intellectual affiliation

The library, considered this time, from the librarian competences and expertises developed - what frequently ignores the users - implies a voluntary approach of coherence and global meaning, according to complex relationships of logical presupposition, genealogy, complementarity, mutual clarification which introduce another dimension that the simple accumulation of resources (Jacob 2001).

Following the Web example, the library is not only one gathering of different files largely prone to fleeting, it represents, beyond its missions (preservation, storage and processing), a privileged place of the exercise of intellectual work. It is the place where the individual thought builds themselves and progresses for this one who has achieve the step to adapt on one's own this place of rules and organization.

These considerations advisedly imply a use of ICT in the direction where it can only be the observations and analysis continuation of information requirements in circumstances where the intellectual and organisational environment as well as the objectives of users are known. It's not a question here to develop self-proclaimed technical logics which are based on user's models (the user paradigm) in rupture with the information practices' reality (novice users,experts) but rather to propose technical improvements not omitting that "*le système de pertinence d'un individu est un état psychologique de prédisposition mettant en cause le cognitif, l'affectif, le perceptif et le comportemental. Il est en fonction de l'ensemble des problèmes spécifiques qui préoccupent l'individu, des projets qu'il a, qui forment son orientation de vie au moment où on le considère*"[4] .

From use to appropriation of artifacts, the individuals' activity is a development where dimensions of reaching goals and realization of productive activity tasks are articulated with dimensions of development of external and internal resources of the constructive activity. Productive and constructive activity are the two faces of human activity which grow rich and change reciprocally : a difficulty encountered in the productive level will be able to give place to resources development in the constructive plan, which in return will modify forms and conditions of productive activities.

It's at a crossroads that we formulated the hypothesis of the development of a real technological mediator, transit area among the librarians' community and the users' one, favourable with intellectual meetings which promote a constructive synergy for the various protagonists .

The users and library staff's observations by our colleagues ergonomists', our lessons in methodology of information retrieval and interactive kiosks' installation dedicated to the use of the Visual... Catalog within the center of the library are the strong points of this research task.

4 The Visual...Catalog : interface for "reading", interface for "looking"

With the Visual... Catalog, even beyond the device's technical expression, we tried to make explicit and rival these various facets which take part of the step of research and resource

[4] A. Mucchielli, "Les Sciences de l'Information et de la Communication", 3ème édition, Paris, Hachette, 2001

processing within the library. Rather than to give a truncated vision of the methodological needs inherent in any search for information, even with the risk to "cognitively saturate" the user, we resolutely maintained at immediate disposal of lisibility/visibility of the user, these different facets expression (cf fig. 1).

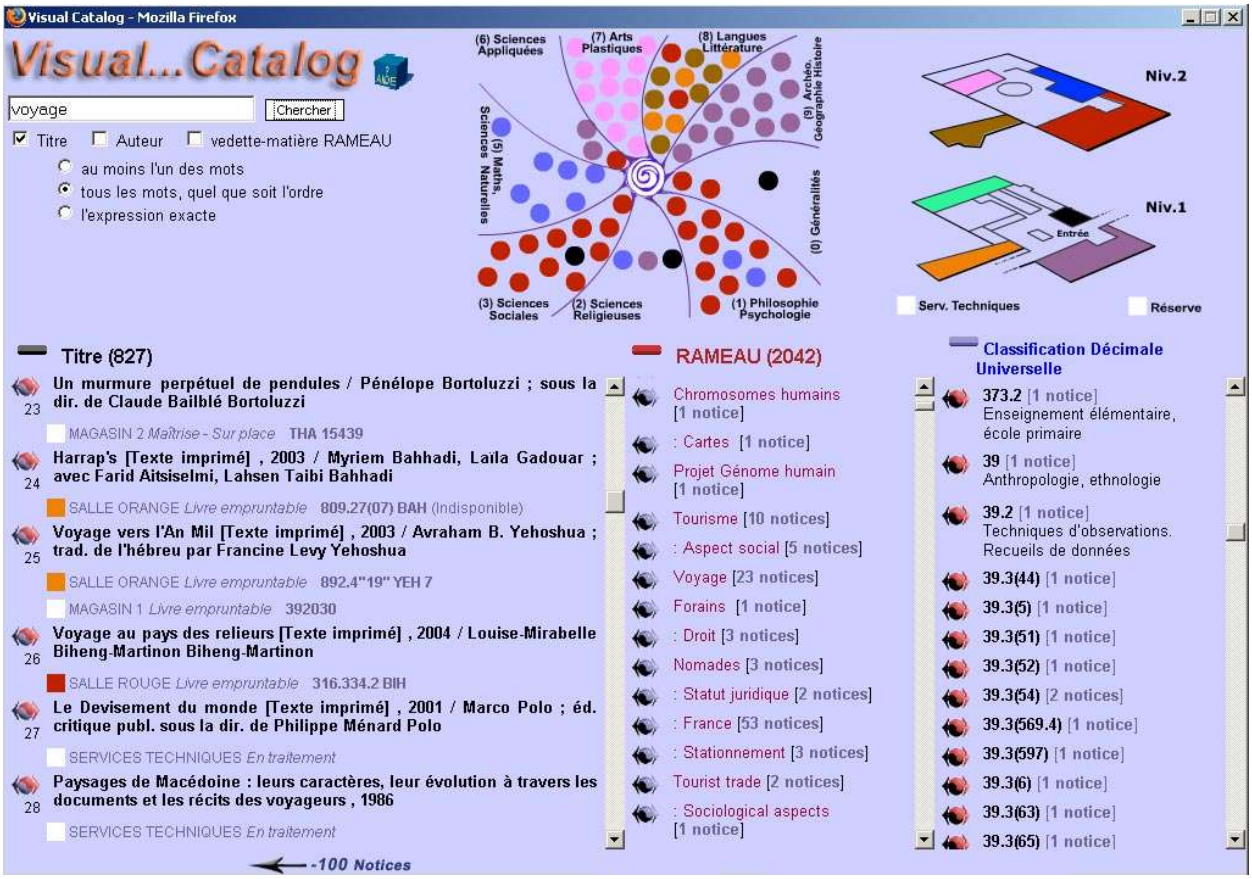

Fig. 1. *The Interface of the Visual... Catalog : accessible from an Internet browser.*

Thus, at the end of a query that the user sends to one or the other of the three fields : title, author or RAMEAU autority headings, he obtains five groups of interdependent informations : two dynamic charts and three textual lists :

- a list of the work titles answering the request, (cf. fig 2),

- a cumulative RAMEAU list (extraction of the notes associated with each catalog entry), (cf. fig. 3)

- a list of classifications (UDC) concerned with the request (extracted from the classification mark) (cf. fig. 4)

- a synoptic chart of the position of the documents in the library, (cf. fig. 5)

- a metaphorical graphic synthesis illustrating the disciplinary areas concerned with the results of research and the degree of specialization (cf. fig. 5).

The 3 textual lists (TITLE, RAMEAU and UDC) interdependent and connected *one to two* : for example, an element selection of the TITLE list regenerates dynamically RAMEAU and UDC lists (cf. fig. 6). It's here that hypertext is introduced, the user will be able indeed to obtain precisely for each work, each RAMEAU autority headings or each UDC class, a kind of dynamic and selective "*focus in context*" making possible to associate on the one hand for each title a list of terms (RAMEAU autority headings) more explicit than the title alone, and on the other hand the intellectual area (UDC subdivision) in which the title was allocated by the librarian. RAMEAU autority headings knowledge will make possible to locate the document in a family of works described with "controlled" terms within an UDC class. Selection of a title, RAMEAU term or an UDC class only making visible the elements in correspondence in the two other lists.

Fig. 2. *The TITLE list. This result is obtained after the word "propapande" was keyed in the RAMEAU input field. The icon, ahead of the title allows to highlight corresponding RAMEAU and UCD. Work title, reading-room, classification mark and availability of each copy are proposed immediately to the user.*

Fig. 3. *The RAMEAU autority headings list obtained from the TITLE list..*

Fig. 4. *The "UDC" list is obtained from the TITLE list.*

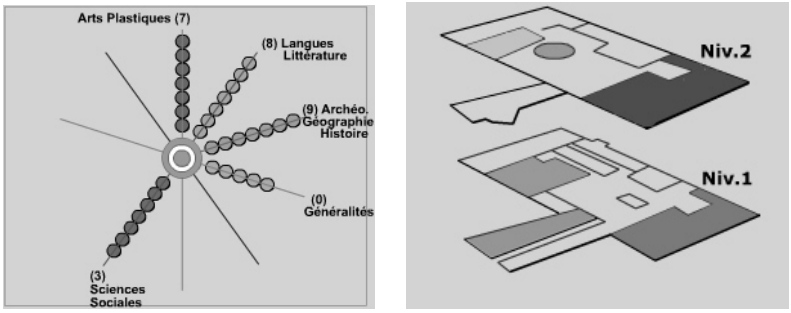

Fig. 5. *The image on the left represents the synthesis of generic disciplinary divisions (UDC) concerned by the query. The cartographic representation gives the reading-rooms where the documents are.*

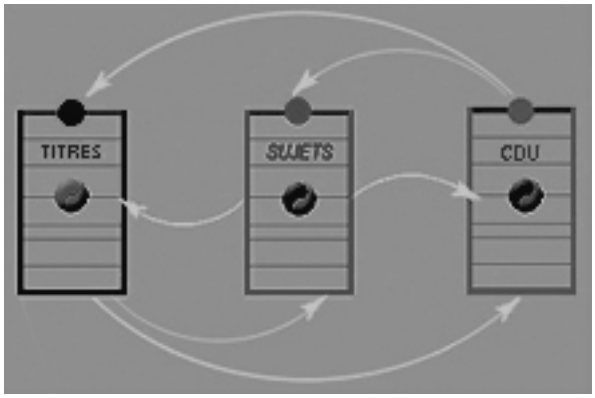

Fig. 6. *Synoptic of the interdependences among the three lists. This figure illustrates the principle of dependence "one to two" : RAMEAU ▫ (Title,UDC), TITLE ▫ (RAMEAU,UDC) and finally UDC ▫ (RAMEAU, Title).*

5 Conclusion

The generalization of "Digital Libraries" services, which invariably proceed through online catalogs increasingly supplied (SUDOC[5] proposes more than 5 million references, BNF[6] more than 7 million), becomes commonplace the access to forms of knowledge organization which remains of rare complexity compared to the vastness of the task. This systematic software mechanization of information systems, induced by the ICT coming from the Web, is accompanied by "self-explanatory" as regards technical handling which tends to fade on the underlying intellectual skills. It should not be forgotten that these information systems only are ultimately the ingredients intended to supply a long and demanding process of the individuals transformation, comprehension and self-knowledges, of others, and systems - whatever they are - in which they evolve by choice or constraint. In this intention and independently of any technological consideration, the capacity of the individual to perceive and ideally to appropriate these informations, is far from being acquired. It rests on skills, strategies, know-how which returns to each one to adapt and draw in the course of social, cultural and cognitive experiences, that he is brought to live.

The digital capitalization of these priceless experiments by means of automatic systems is likely to quickly become inaccessible for the greatest number, if the instrumental dimension of these systems continues to be considered like the only factor of promotion.

Indeed, human knowing preserved through logics dedicated to mechanization and the procedurality, structured by technological requirements, will quickly prove not to be exploitable for the least familiar among us with artefactuals logics.

Such stakes impose that ways of balance are open or preserved so that the social mediation related to the information situations, often absent because of improbable representations, is not therefore subjected to the crushing technical mediation.

In that sense, the Visual... Catalog, is not only a new release of information processing system specialized into bibliographic data, it fits truly in a process of instrumentalized social mediation. Indeed, supporting the communication between the two communities previously quoted constitutes the real stake on the one hand of the places' appropriation and their functioning requirements by the user and on the other hand of a real knowledge of the user's needs by the instrumentalized library's professionals. In dialogue with the university Paris 8 libray's staff on the one hand, and by inspiring us on the other hand of Alain Coulon's work

[5] Système Universitaire de DOCumentation
[6] Bibliothèque Nationale de France

relating to the intellectual affiliation and the appropriation of intellectual skills, we developed an hyphen device of which we think that it will support the communication between the two communities. The experiment will enable us to validate not only the formulated assumption but also to confirm the need for a social extension to the technical device which we worked out. If the results proved to be convincing, it's a reconfiguration of the data-processing proposals inspired primarily by a dyed-in-the-wool technological determinism which would be to reconsider and to reorientate towards an instrumentalized and socialized accessibility.

Acknowledgements

We wish to express our thanks to the University Paris 8 Library's staff for his great receptiveness. Our gratitude is dedicated to Mr. Euvrard, Chief librarian, who has encouraged, from the start, this collaborative action among Research and Library.

6 Bibliographie

(ACM 1988) ACM, "HYPERTEXT 88", ACM, VOL. 31 (7), JULY 1988

(AROT 2001) AROT D., Rapport d'activité du secrétaire général 2000-2001, 46 pages, Conseil Supérieur des Bibliothèques, http://www.enssib.fr/autres-sites/csb/csb-interventions/csb-rapportactivite2000-01.html [consulté le 22 février 2005)

(BALPE 1996) BALPE J-P, Lelu A., Saleh I., Papy F., "Techniques avancées pour l'hypertexte", Editions Hermès, Paris 1996.

(BORGMAN 1986) BORGMAN L., "The user's mental model of an information retrieval system : an experiment on a prototype online catalog", Int. J. Man-Machine Studies, (1986), 24, pp. 47-64

(BRETELLE-DESMAZIÈRES 1999) BRETELLE-DESMAZIÈRES F., Coulon A., Poitevin C., "Apprendre à s'informer : une nécessité. Evaluation des formations à l'usage de l'information dans les universités et les grandes écoles françaises", Laboratoire de Recherches Ethnométhodologiques, février 1999

(BROWN 1989) BROWN P. J., "Do we need maps to navigate round hypertext documents ?", Electronic Publishing, Vol 2 (2), July 89, pp 91-100

(CABIN 1993) CABIN P., "Les tribus professionnelles", Sciences Humaines, n°33, nov. 1999

(CAMPOS 2003) CAMPOS M., "The progressive construction of communication. Toward a model of cognitive networked communication and knowledge communities", Canadian Journal of Communication, Vol. 28, 2003, pp. 291-322.

(CASTELLI 1996) CASTELLI C. "Getting lost in Hyperspace : Lessons learned and future direction", in ED-MEDIA 96/ED-TELECOM 96, 1996.

(CASTELLS 1996) CASTELLS M., "La société en réseaux", Fayard, 1998

(CHARTE 1991) Charte des bibliothèques adoptée par le Conseil supérieur des bibliothèques le 7 novembre 1991, http://www.enssib.fr/autres-sites/csb/csb-char.html [consultée le 22 février 2005]

(CHAUDIRON 2002) CHAUDIRON S., Ihadjadene M., "Quelle place pour l'usager dans l'évaluation des SRI ?", actes du colloque "Recherches récentes en Sciences de l'information", 21-22 mars 2002, Toulouse, Adbs-Editions, V. Couzinet et G. Régimbeau (dir), pp 211- 230

(CHAUVIN 2004) CHAUVIN S., "VISUAL…UDC Graphical interface for exploring library online catalog", ACM DIS 2004, - Designing Interactive System, August 2004, Cambridge, Massachussetts.

(CHU 2003) CHU H., "Information representation and retrieval in the digital age", Medford, New Jersey: Information today, 2003.

(CLÉMENT 1995) CLÉMENT J., "Du texte à l'hypertexte: vers une épistémologie de la discursivité hypertextuelle", in Balpe J.-P., Lelu A., Saleh I. (coords.) in Hypertextes et hypermédias: Réalisations, Outils, Méthodes, Hermès, Paris, 1995.

(COULON 1997) COULON A., "Le métier d'étudiant : approches ethnométhodologique et institutionnelle de l'entrée dans la vie universitaire", thèse de Doctorat d'État, Université de Paris 8, 1990, 3 vol., 1130 p. La partie empirique de cette thèse a été publiée : Alain Coulon, Le métier d'étudiant. L'entrée dans la vie universitaire, Paris, PUF, 1997, p.222

(COULON 1999) COULON A., "Penser, classer, catégoriser : l'efficacité de l'enseignement de la méthodologie documentaire dans les premiers cycles universitaires", Laboratoire de Recherches Ethnométhodologiques, Université Paris 8, février 1999

(DEMAIZIÈRE 1996) DEMAIZIÈRE F., "L'utilisation des nouvelles technologies en éducation et en formation continue", in Savoir Former - Bilans et perspectives des recherches sur l'acquisition et la transmission des savoirs, les éditions Groupe DEMOS, novembre 1996, pp 111-115

(DINET 2003) DINET J., Rouet J-F., "La recherche d'information : processus cognitifs, facteurs de difficultés et dimension de l'expertise", in Interaction Homme-Machine et recherche d'information, dir. Céline Paganelli, Traité STICS, ed. Hermès-Lavoisier, 2003, pp. 133 – 161

(DUBEY 2001) DUBEY G., "Le lien social à l'ère du virtuel", PUF, Paris, 2001.

(FLICHY 2001) FLICHY P., "L'imaginaire d'Internet", Ed. La Découverte, Paris, 261 pages

(FLICHY 2002) FLICHY P., "La place de l'imaginaire dans l'action technique : le cas d'internet", Réseaux, n°109, 2002

(FOENIX-RIOU 2001) FOENIX-RIOU B., "Recherche et Veille sur le Web visible et invisible ", Editions Tec & Doc /Bases Publications, avril 2001, 234 pages

(FRESSARD 2002) FRESSARD Olivier, "Les formations thématiques à la bibliothèque de Paris-8", deuxièmes rencontres Formist sur le travail universitaire et la maîtrise de l'information : de la stratégie aux méthodes pédagogiques, 13 juin 2002, http://formist.enssib.fr/412567A000579660/VLSRW/140ED2795540989AC1256B41003A915D?OpenDocument&Langue=Francais [consultée le 22 février 2005]

(GASTÉ 2001) GASTÉ D., "Navigation ou déambulation multimédia ?", Actes du colloque "La Communication Médiatisée par Ordinateur : un carrefour de problématiques", Université de Sherbrooke, 15 et 16 mai 2001

(GIFFARD 1997) GIFFARD A., "Petites introductions à l'hypertexte", Banques de données et hypertextes pour l'étude du roman, Nathalie Ferrand (dir), PUF éctitures électroniques, 1997

(HARVEY 1995) HARVEY P-L, "Cyberspace et communautique", Les presses Universitaires de Laval, 1995

(HARVEY 2002) HARVEY P-L, "La connaissance au-delà du savoir à l'ère des inforoutes : de la diffusion de l'information à la création du sens dans les bibliothèques virtuelles", Documentation et Bibliothèques, janvier-mars 2002, pp. 5- 9

(HARVEY 2003) HARVEY P-L, "Les îlots de vie communauticielle", Actes du colloque "Communautés virtuelles : penser et agir en réseau", 6 et 7 novembre 2003.

(HUNTER 2000) HUNTER Eric, "Do we still need classification ?", in The future of Classification ed R. Marcella and A. Maltby, Gower Publishing, Vermont, USA, 2000, pp. 1- 90

(IHADJADENE 2001) IHADJADENE M., Bouché M., "The dynamique nature of searching and browsing on web-opacs: the Cathie experience", Proc. of the 6th International ISKO conference, Beghtol C., Howarth L. et Williamson N. (dir), 10-13 July Toronto, Canada, 2001, pp 327-332.

(JACOB 2001) JACOB C., "Rassembler la mémoire. Réflexions sur l'histoire des bibliothèques", Diogène, n°196, PUF, oct-déc. 2001, pp.53-77

(JEANNERET 2000) JEANNERET Y., "Y a-t-il (vraiment) des Technologies de l'Information ?", Presses Universitaires du Septentrion, 2000.

(JOLLY 2001) JOLLY C., "Le plan U3M et les bibliothèques des établissements d'enseignement supérieur", chniques et architecture, juin-juillet 2001, n° 454, pp.80-83, <http://www.sup.adc.education.fr/bib/Acti/U3m/planU3M.htm> (consulté le 21 février 2005)

(KESSLER 1996) KESSLER J., "Internet Digital Libraries, the international dimension", Artech House, London, 1996

(Le Coadic 1997) Le Coadic Y., "Usages et usagers de l'information", ADBS, Nathan, 1997, 128 pages

(Le Marec 2003) Le Marec J., Babou I., "De l'étude des usages à une théorie des composites : objets, relations et normes en bibliothèques", BPI, mars 2003, pp. 235-299

(Le Quellec 1998) Le Quellec B. "Construction Automatique de documents hypermédias à caractère technique dans un cadre industriel", thèse de doctorat, Univ. Paris 8, 1998.

(Lecolinet 2001) Lecolinet E., Fekete J-D., Pook S., "Bibliothèques : comparaisons entre le réel et le virtuel en 3D, 2D zoomable et 2D arborescent", ASTI 2001, pp 24-25, Paris, France, 24-27 avril 2001.

(Lupovici 2001) Lupovici C., "Du catalogue informatisé à la navigation dans l'information numérique", Revue de la BNF, n°9, 2001, pp. 80- 83

(Maisonneuve 2003) Maisonneuve, M.., "Du catalogue de la bibliothèque aux ressources du Web", Paris, ADBS, 2003, 148 pages.

(Papy 1993) Papy F., Vuldy J-L., "Automatic creation of hypertext networks from technical documents", Vienna Conference on Human Computer Interaction, Vienna, Austria, 20-22 septembre 93

(Papy 2001) Papy F., Saleh I., Bouhaï N., "Chercher et réorganiser l'information sur le Web", actes du 5ème colloque Hypermédias et Apprentissages, 9-11 avril 2001, Grenoble, pp. 49-58

(Papy 2003) Papy F., Bouhaï N., "HyWebMap et K-Web Organizer : Dispositifs complémentaires d'organisation individuelle et communautaire de connaissances", 4eme Congrès ISKO-France, Grenoble, 3-4 Juillet 2003

(Papy 2004) Papy F., "De l'hypertexte au document numérique personnalisable", Mémoire d'Habilitation à Diriger les Recherches, 30 novembre 2004, Université Paris 8.

(Papy 2004) Papy F., Folcher V., Sidir S., Cerratto-Pargman T., "E-Learning et technologies pour la coopération : inadéquations artefactuelles et logiques des activités instrumentées", ERGO-IA, 17-19 novembre 2004

(Peignet 2005) Peignet D., "La bibliothèque peut-elle survivre à ses consommateurs ?", BBF 2005 – Paris, t. 50, n° 1, p. 38-45

(Piotrowsky 2004) Piotrowsky D., "L'hypertextualité ou la pratique formelle du sens", Paris : H. Champion, 2004, 226 p.

(Polity 2001) Polity Y., "Les bibliothèques, objets de recherche universitaire", BBF 2001 – Paris, t. 46, n° 4, p. 64-70 [Consultée le 22 février 2005]

(Quint 2003) Quint V., Hypermédia et Technologies du Web, Hypertextes et Hypermédias, Hermès, Paris, 2003

(RABARDEL 1995) RABARDEL P., "Les hommes et les technologies : approche cognitive des instruments contemporains", éd. A. Colin, Paris, 1995

(ROY 2003) ROY R., "Pour une approche "conviviale" de l'accès à distance aux collections des bibliothèques publiques", 4e Congrès ISKO-France, 3 & 4 juillet 2003, Grenoble.

(SALEH 2004) SALEH I., Papy F., "Navigation et recherche dans un système hypertexte", Méthodes avancées pour les systèmes de recherche d'informations, traité STI, M. Ihadjadene (sous la dir. de), Hermes, Paris, 2004

(SALVAN 1967) SALVAN P., "Esquisse de l'évolution des systèmes de classification", Ecole Nationale supérieure de Bibliothécaires, Paris, 1967.

(SOUCHIER 2003) SOUCHIER E., Jeanneret, Y., Le Marec, J., "Lire, écrire, récrire", Bibliothèque Publique d'Information, (Etudes et Recherches), 2003

(TRICOT 1998) TRICOT, A., Rouet, J-F., (dir), "Les Hypermédias, approches cognitives et ergonomiques", Paris, Hermès 1998

(WOLTON 2000) WOLTON, D., "Internet, et après ?", Editions Flammarion, Paris, 2000.

(YEE 1999) YEE M., "Guidelines for OPAC displays", 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - August 28, 1999 (http://www.ifla.org/IV/ifla65/papers/098-131e.htm)