Information Services & Use 31 (2011) 147–155
DOI 10.3233/ISU-2012-0644
IOS Press

Archives information publishing new design in post-custodial regime: The National Archives Experience Digital Vaults [1]

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Abstract. The uses of Information and Communication Technologies (ICT) and Web environments for creation, treatment and availability of information have supported the emergence of new social–cultural patterns represented by convergences in textual, image and audio languages. This paper describes and analyzes the *National Archives Experience Digital Vaults* as a digital publishing web environment and as a cultural heritage. It is a complex system – synthesizer of information design options at information setting, provides new aesthetic aspects, but specially enlarges the cognition of the subjects who interact with the environment. It also enlarges the institutional spaces that guard the collective memory beyond its role of keeping the physical patrimony collected there. Digital Vaults lies as a mix of guide and interactive catalogue to be dealt in a ludic way. The publishing design of the information held on the Archives is meant to facilitate access to knowledge. The documents are organized in a dynamic and not chronological way. They are not divided in *fonds* or distinct categories, but in controlled interaction of documents previously indexed and linked by the software. The software creates information design and view of documental content that can be considered a new paradigm in Information Science and are part of post-custodial regime, independent from physical spaces and institutions. Information professionals must be prepared to understand and work with the paradigmatic changes described and represented by the new hybrid digital environments; hence the importance of this paper. Cyberspace interactivity between user and the content provided by the environment design provide cooperation, collaboration and sharing knowledge actions, all features of networks, transforming culture globally.

Keywords: Web publishing, historical archives, information and communication technologies, post-custodial, hypertext

1. Introduction

The increasingly intensified uses of Information and Communication Technologies (ICT) and the Web environments for creation, treatment and availability of information have supported the emergence of new social–cultural patterns represented by convergences in textual, image and audio languages used within the media that were created in these environments. Such actions of information creation, storage, retrieval, use and re-use occur at varied levels of complexity depending on the organization of information in the digital environments, the information context and the subjects involved.

Archivistics, an Information Science subarea, traditionally deals with *fonds* of records according to centenary, if not millenary, principles that have not changed much regarding to patrimony and custody of information collections. The Historical Archives custody spaces are mostly still meant to professional

[1] Paper also published in the *Proceedings of the 16th International Conference on Electronic Publishing*, ISBN 978-1-61499-064-2.

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visitors, not to the general public. In this context of Archives, Research Instruments traditionally lead to data, interfacing the relations between the searcher and the information stocks: they are guides, catalogues and inventories destined to mediate searching. With the changes brought by the ICT, this landscape has already been significantly altered and the relations realm of the above mentioned professionals with the information in the Archives collections were facilitated by digitalization.

Furthermore, some software designs and information retrieval models can give access and make general public interaction possible within the digital interfaces of the Archives, provoking relevant changes in the uses of the information stocks preserved by these institutions. These changes implement historical Archives with a broader social meaning, according to a new and post-custodial paradigm, in which any individual is able to access, research in and rebuild virtual collections, creating unique paths to approach historical contents. In such situations, deriving from the way information is published in Web for visualization, a re-contextualization of the archives institution role in society and culture may occur.

The custodial paradigm is therefore to overcome physical constrains by providing access to information which could once only be known by visiting the collections in person.

Considering the analyzes of the interactive experience in a Web environment made possible by the American *National Archives Experience Digital Vaults* [22] as a means and as a cultural message, this paper intends to focus on the results of the representation convergences that are offered as interface of a complex system [4]. This system synthesizes information design options at information setting, provides new aesthetic aspects, but specially enlarges the cognition of the subjects who interact with the means. It also enlarges the institutional spaces that guard the collective memory beyond its role of custodying the physical patrimony kept there.

2. Brief overview

Documents left behind by Paul Otlet [18] show that he had already continuously experienced alternative representation views and design, as well as relationship perceptions among classes of objects in studies carried out at the beginning of the 20th century, experimenting "various forms of knowledge integration and distribution that imply the need for mechanisms currently recognized as similar to various types of interface" [4].

Designing information storage support that is capable of converge different kind of documents and records to facilitate subsequent retrieval was also carried out by Vannevar Bush [13] in 1945. The Memex [9] project was presented as the solution through a new form of information storage support and retrieval, able to relate and link different documents with each other, creating what is currently called multimodality. Although the Memex building was never accomplished, remaining as a project, the mere possibility of a multimodal support as Memex inspired other researchers.

Douglas Engelbart [5] expanded the concept of multimodality on one same support and created a collaborative workspace, the oN-Line System (NLS), in the 1960s. The NLS can be considered the first collaboration system in a digital environment, having links and a peripheral tool – the mouse – to point out the wishes of the subject interacting with the machine, as well as the window-like screens to organize information according to its importance in creating the content. Engelbart [5], working at Air Force Office of Scientific Research, wrote a report to the Director of Information Sciences in 1962, called "Augmenting human intellect: a conceptual framework" [3]. On the document, Engelbart claims that computers augment comprehension due to its complex organization format of information and thought. Also, Engelbart highlights the aspect of discontinuity in relation to the traditional forms of access to knowledge.

Following the same discontinuity idea, Theodor Nelson [11], influenced both by Bush's Memex and Engelbart's ideas presented the concept of Hypertext [7], in 1965, which was considered a landmark in the history of multimodality. Nelson developed Xanadu Project [10] hypertext system lying between environmental design and software, being able to view a text and its links on computer screen. Xanadu Project [10] has received various updates and different versions and Nelson had to continuously readapt to new teams working on the project in the forty years from the date the project was first launched to the present days. In Nelson's hypertext vision, a serious electronic literature, created to teaching and sharing must support two-directional and profuse links and must offer means for a proper reuse; however, this reality has not been accomplished yet.

A version of the complex Project Xanadu [10] was the one prevailing at Timothy Bernes-Lee's World Wide Web [14], in 1990. Yet very similar and dependent on the technological paradigms of writing on paper, and thus considered continuity line, the Web that prevailed is criticized by Eric Drexler [2,8] for its linearity and mono-directional links. According to Drexler, a complete hypertext must support links in a way they can be followed in two directions; meanwhile the semi-hypertext can be followed in only one direction as in the Web. Even though, the way it is, the Web has revolutionized the means of disseminating information and has fostered the development of an information sharing culture that has brought us to our days.

In this context, another landmark to be considered is the meeting hosted by O'Reilly Media [12] to discuss the prevailing Web, in 2004. At the meeting, a second period in the Web lifetime was identified, a moment broadly disseminated by the term Web 2.0 that, despite controversies, survived: digital environments now add 2.0 to emphasize qualities as interactivity, sharing and collaboration.

Considering what has been discussed about Web 2.0 [14], this paper will especially focus on access and information sharing through views provided by convergences of multimodal language design, with a special emphasis on image, which have been developed since the Graphic User Interface (GUI) creation [6] in the 1990s and have an important role consolidating the concepts involving Web 2.0 [14].

3. National Archives Experience Digital Vaults (USA)

The American National Archives is a governmental federal agency for custody and preservation of American Government documents, a function shared by every Historical Archive in the world. However, in the USA context, due to the democratic commitments speech on which the United States are grounded, access, discovery, use and learning of the cultural heritage preserved on the documents guarded by the institution need to be ensured. Thus, according to the institutional web page, the National Archives exists to "support democracy, promote civic education and facilitate historical understanding of our national experience" [22]. Apart from keeping historical documents, ideological reasons clearly emerge from the quotes selected in the text disposed in the Web site that can justify the intentions of favoring access, learning and preserving not only the collections, but the immaterial heritage there contained.

> Every subject relating to American history is covered in the nine billion records, the millions of photographs, maps and electronic records and the thousands of motion pictures and audio recordings that are available to the public at the National Archives nationwide. The National Archives maintains 20 *regional records facilities* and 12 *Presidential libraries* nationwide, as well as the *Office of the Federal Register*, the *National Historical Publications and Records Commission (NHPRC)*, and the *Information Security Oversight Office (ISOO)* [22].

Digital Vaults Experience [22] is therefore developed in this context. The expression digital vault must be highlighted because in general terms it is related to priceless items which must be well safeguarded so that they are not lost or exposed, but here it is probably strategically used to explore the semantic oppositions between closure and openness of the archives. A "vault" is usually within a bank facility where objects or critical data are kept and accessible only to few privileged ones, not frequently available for the public in general. However, the web Page describing the experience reads:

> The Foundation for the National Archives works in partnership with the National Archives to "open the stacks" of the Archives and enable millions of visitors to interact personally with the original records of our democracy through the National Archives Experience, filling the public spaces of its flagship building in Washington, DC, with exciting exhibitions and varied learning opportunities [22].

The Digital Vaults [22] Experience initiative thus respond with information new design intending to provide a large number of visitors with access to valuable archives documents, unlike the above mentioned traditional Historical Archives in the whole world, which tend to be very patrimonial, serving specialists and not the general public. To accomplish this goal, in USA the Foundation for the National Archives [17] was founded in 1992 as an independent non-profitable government organization whose mission is to call public attention to actions that focus on access and dissemination of the information kept in custody and to rise funds among civil society to create alternatives of access as the focused one. Together, Government and Foundation are partners of a common effort for the development of a synchronic work with The USA National Archive, whose duties of treatment, organization and information selection for dissemination are preserved; the Foundation raises the funds to fulfill this mission claimed to be essential to education for democracy, parallel to mere documentary custody and preservation. In this context it is possible to understand that the creation of National Archives Experience as a "national civic literacy initiative which includes permanent exhibits, educational programs, traveling exhibits, special events and screenings, educational literature, and historical/records-related products and media" [22].

The initiative afforded design specialists to build The Digital Vaults Experience [22] database and the interactive hypertext digital space. This database, which conveys the experience, holds information related to the American National Archives contained by approximately 1200 chosen documents in distinct supports: pictures, drawings, maps, etc. What links them is the design software, based on a digital system of relationships between keywords, translated into a convergence of visual experiences presentations. Such features provide visitors with an opportunity to customize by personalizing information exhibition.

Digital Vaults Experience [22] then seems to be an instigator that follows the shape of traditional physical Archives research tools: it lies between a mix of guide and interactive catalogue to be approached visually in a playful and enjoyable way. The web studio design, Second Story Interactive Studios [19] defined it as a Web 2.0 experience that won a Information Design award and "was selected Honorable Mention in Exhibition at the 2008 Museums in the Web Conference" [22], according to the press release page of the National Archives Digital Vaults Experience.

The presentation design of the archives as described above is thought to facilitate access to knowledge and create opportunities for History learning by providing, in a broad sense, primary sources of information that bring attractive, carefully and aesthetically presented images. The choice of paths to be followed from the relationships among the documents will constantly re-draw a historiography of informational

flows by association which is similar to natural human neural connections [21], according to previously thought contents created as collections by teachers and students or other education professionals.

These actions meet the post-modern concepts of historical and collective memory construction: unlike the information kept in the stacks of physical archives, in Digital Vaults Experience the documents are displayed in a dynamic and not chronological manner. The digitalized documents are not divided in *fonds* or distinct categories as the physical ones must be, but through controlled interaction and association made by documents previously indexed and linked by topic mapping software which creates different design approaches for information and viewing of documentary content.

As a result of the partnership between private and public sectors and the consequent possibility to act on dissemination through interactive Web 2.0 generation technology, new perspectives were added to Historical Archives.

> Tom Wheeler, President of the Foundation for the National Archives, said, "We are thrilled that the first stage of the Digital Vaults has been launched and is ready for online visitors. The web site has long been considered a critical component of the *National Archives Experience*, one that would go far beyond the 'granite walls' of the National Archives building in Washington, to enhance the experience of visitors worldwide. The Digital Vaults will help to 'unlock' the stacks and reveal some of the treasures entrusted to the National Archives" [22].

To embody the educational aspect, the construction of the digital environment searched to simulate the historical research to encourage the discovery urge in visitors, according to Suzanne Isaacs and Lee Ann Potter's analyses in *Teaching with documents* [20], published by *National Council for the Social Studies*.

The authors highlight that when one enters the web site (s)he views the publishing image of eight thumbnail format documents. The screens overlap the documents linked to each other by related topics. A group of five keywords (tags) and four types of filters are placed in a squared field centered as an interactive box on the left side of the screen. Whenever one selects an image, an exploratory path is triggered. As the selected image moves toward the center of the screen, the view is completely remodeled, reloading to every click and so do the keywords and the filters' box. If one filter is chosen and clicked on, another group of relations are also shown in a second level, providing tools to reduce and facilitate the search and the creation of new associations. On the right side of the screen there is another tool meant to reduce/amplify the options related to the distance among the links related by the graph theory that embody the framework. If a document cannot be reached due to the limits of the screen, it can be brought to a better visualization point by the arrows in this box or, on the contrary, documents placed nearer to the centered of the screen can be enlarged through the tool, zooming the search. With a move of the mouse on the tags displayed on the left of the screen, lines pop up spotting the relations links to the topic. When the mouse is hovered on the zoomed document, other details can be viewed by the opening of another box that displays mixed image/text description and briefly contextualizes the document. In addition to these actions, the Digital Vaults Experience [22] also allows the user to execute various tasks within the environment through five buttons at the bottom of the screen that once clicked allow interactive actions in the page: *collect*, *backtracking*, *pathways*, *search*, *create*.

The *collect* button creates an account and saves the settings for every visit if wished by the user, allowing previous visit and reading retrieval at any time. After the settings are collected, they can be transferred to a slide presentation program to build teaching material for further sharing.

The *backtracking* button takes one back to the paths already chosen, displaying documents previously exposed centrally as well as to the settings previously established for such actions.

The option *pathways* bring possibilities for choosing diverse paths to retrieve historical information and "challenges" where some tags can also be erased to retrain options. This tool is meant for teachers who can direct playful and delightful learning.

The s*earch* button allows a kind of search done by tagging each document and it offers a link to the main catalogue (Archival Research Catalog (ARC)) which in turn is linked to regional historical Archives and other Libraries. The results follow thumbnail format images.

There is also an interactive creation section which enables creating podcasts, posters and presentations with the preview option by pushing *create*. The creation button opens two options of publishing: poster and movie. These must be brought from the collection previously built by the chosen subjects and combine again text and images.

It is important to highlight the fact that depending on the way the design professionals build the indexation and tagging of the 1200 chosen documents, failures can happen and do happen in this process of digital environment building. Declared as an experience, critics may improve and lead the experience to achieve a better accuracy level avoiding distortions to accomplish its role as a reliable information and knowledge interface. Information professionals hired to work together with the web designers in multidisciplinary creation groups for these publishing environments should be able to bring Information Science expertise techniques and strategies related to ontology, thesaurus, and so on, closely related to the identification of suggested improvements.

Nonetheless, the point to be made in this article regards the fact that because this experience is supported on digital means, the linking elements and possibilities described above create mobility, dynamics and detailing impossible to be otherwise performed in physical environments of Historical Archives: apart from the descriptions above, the links also relate to other articles, online exhibitions, teaching and learning plans and interoperability with other governmental agencies creating a flow, and emphasizing the aspect of knowledge processing as described by Michael Buckland in *Information as a thing* [19].

Second Story Interactive Studios [19] is a commercial studio and also designed other immersive digital experience as the one for the Coca-Cola Company, located in Atlanta. The experience follows the tendency already explored in The National Archives Digital Vaults Experience, of provoking curiosity and exploring the feeling of penetrating a vault compound in which interactive actions can be performed; and which appeals to the same concept of the Vaults, but overcomes it: in Coca-Cola Company situation the immersion invokes an even more intense sense of participation, with other possible various actions. As a well-known wealthy company, the inversions of money destined to the immersive environment were one differential to be considered, but still makes one think on even broader possibilities for enlarging universes of Historical Archives publishing records keeping faithfulness to principles of *fonds* and yet conveying information only possible by simulation and associative relationship of links.

4. Design favoring publishing and information viewing: A post-custodial perspective for Information Science

The custodial paradigm and its practices have turned Historical Archives into privileged environments for historians and information professionals. Limited by buildings, spaces allocated for archives were changed in function from administrative processes managers (*records*) to historical testimony keepers (*archives*) very similarly to the museums' role in modern society, although the Archives collections remained closed to the public.

The idea of a Post-custodial Archivistics was born in Quebec Canada. Louise Gagnon-Arguin linked the concept to post-modernity [16]. Just after, Carol Couture [15], Jacques Ducharme e Jean-Yves Rousseau also did it.

Fernanda Ribeiro [23] and Armando Malheiro da Silva [24], Portuguese archivists, defend a post-custodial paradigm related to analyses of archives on current days too. Unlike the previous period, known for praising custody, patrimony and technicalities regarding Archives and Libraries, the post-custodial paradigm does not depend on physical spaces and institutions created mainly since 1789 along with the administrative changes brought by the French Revolution: a model of institutional keeping and guarding public administration documents has become available for the sake of democratic ideals. Such paradigmatic model is attached to the building, the physical place, which according to Ribeiro [23] was a popular idea fuelled by the positivism.

> The French model, widely spread in Europe in the 1800s, characterized as historical, positivist and custodial consolidated along the 20th century was re-shaped due to technological developments. Since the beginning of 20th century, new patrimonial values have been added to historical archives, becoming clear that they are cultural asset, possible to own, acquire, collect or even sell because they are economically, affectively and aesthetically valuable [23].

The Dutch model, parallel to the French, related to the current administration, on the other hand, focused on document management, more instrumentalist, however more independent from other disciplines. According to Ribeiro [23] both models represent a dichotomy and oppose in forms of treating administrative documentary production. Dichotomy and opposition that became more evident after the period between Wars, with the spread of documentation on paper and the increase of mass media, new technologies then. However, none of the models overcome the issue of a physical place as a limited environment and neither the emphasis on management and autonomy employed by the Dutch line of thought, nor the conceptual crisis triggered by the new technological environments, embodied the Archives practices with the processes scientificity, during the 20th century.

> Archivistics has developed as an independent discipline, but the historical–technicist paradigm featuring the field in the last two centuries, which led to its technical autonomy ended up as an embarrassment factor. For this reason, there was not a qualitative improvement needed for the development of the discipline when technology "threatened" traditional documents in their static support and the emergence of the Information Society posed new challenges [23].

The search for an independent identity constituted a new science field in the 1950s – Information Science (IS) – also marked by the parallel increase of informatics which deeply influenced the emergency of the shift theory: to post-custodial and informational scientific paradigm.

The importance of access and information dissemination currently represented by new design and new visualizations made possible by Information and Communication Technologies (ICT) and put into practice via Web environments, thus, must be thought as means of new opportunities for IS to build scientific knowledge. On the other hand, one must also weaver ICT innovations with the millennial Archive practices placed along History as well as with the rupture moment instituted by the French Revolution – that led modern democratic ideologists.

Regarding to considerations that paradigms shifts only happen based upon visible ruptures, and that no rupture was imposed in Archivistics or in IS to be considered a paradigm break, one can argue that paradigms are also historically broken in continuity line as the systems they represent exhaust and go into entropy.

This paper then considers that digital environments of information publishing as the one described here, mediate, as interfaces, a considerable amplified access to information; the design strategies used within the environment build new knowledge in Archivistics – or through Archives – to layers of subjects before ignored; and thus should be thought as indicatives of the paradigmatic changes. Because Information Science and Computer Science share systems and interdisciplinary fairly closely, it is possible to envision emerging zones of hybrid design not present before in Historical Archives environments. They are not mere research instruments; they are not materialized as collections *fonds* either; they are immaterial, but real. Therefore, the *National Archives Experience Digital Vaults* [4] as an information system currently inserted in Information Science new paradigms of interactivity can be also considered part of a post-custodial information regime. It enables new points of view to perceive the world and its values – not statically, but dynamically, like the converged formats built in hybrid modes of digital environments. The scientific fields emerging from there do not belong to one specific discipline or domain; due to technological revolutions, they are considered inter and cross-disciplinary, composing new systematically inter-related fields. The methodologies approaching these changes will also need changing to meet the systemic values developed within these dynamics.

Professionals working in the fields previously defined will have to be prepared to understand and learn about the paradigmatic changes described and represented by the new hybrid digital environments. As highlighted by Ribeiro [23].

The technician, document keeper who discretely waited for the organic entity, once information provider, to send him documental support which was not longer in administrative use will have to be at the front line in the "post-custodial era". This means he will have to be ahead together with the information production and be manager and structure for the information flow that runs and feeds the function and decision making of the organization [23].

The new information professional must consider that on cyberspace interactivity between user and the content provided by the environment design occurs in real time and continuous space; that on cyberspace custody and safeguarding ideas are broken because physical distance is irrelevant; that on cyberspace distances only depend on access conditions determined by networks and software; that barriers are broken creating opportunities for pathways through links and actions selected by individual internet users; last, that interactivity and creativity consequently comprehend cooperation, collaboration and sharing knowledge actions and all these peculiarities have their own level of knowledge on the net and hence transform culture globally.

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