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# Digital Scholarly Editions as Interfaces

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## Design of a Digital Library Interface from User Perspective, and its Consequences for the Design of Digital Scholarly Editions: Findings of the *Fonte Gaia* Questionnaire

Elina Leblanc

#### Abstract

A clear separation is made between digital scholarly editions and digital libraries, as the few digital libraries that provide digital scholarly editions exemplify. This situation might be related to the perception we have of these two resources, but also to design problems (visualisation of the critical apparatus for example) that seems to prevent us to consider digital libraries as interfaces for digital scholarly editions. The Fonte Gaia Bib digital library - a French-Italian project - is aiming at embedding digital scholarly editions in its infrastructure to propose an overview of Italian studies at the digital era. For that, we have chosen a User-Centred Design (UCD) approach to co-create the interface of Fonte Gaia Bib with its users. The first phase of this process has been a questionnaire launched in May 2016 and focused on users, services, and collaboration. The 67 answers collected showed shared practices among the users (e.g. reading, search) and underline a wish to be implied in the life cycle of digital libraries, through the improvement of its collections (e.g. tagging, OCR correction). By comparing these findings to the ones focused on digital scholarly editions, it appears that digital libraries and digital scholarly editions share similar characteristics that allow us to envisage a common interface for both resources.

## 1 Introduction

Few digital libraries offer digital scholarly editions to their users, like *Les Bibliothèques virtuelles humanistes* (BVH) or the *Cambridge University Digital Library* (CUDL) attempt to do. Even if digital libraries provide digital contents which are varied in their form and their scope, it seems that a clear separation is made between digital libraries and digital scholarly editions.

This separation tends to reproduce the distinction made by Patrick Sahle between digitized editions, which are a digitization of one printed edition, and digital editions which are a "representation of a potentially large number of documents" (Sahle 27). This might also be related to the perception we have of digital libraries. They are

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often perceived as extensions of physical libraries (of which they mimic the services and the form), or as data silos with little editorial content, exceptions made for bibliographical metadata (Claerr and Westeel 26–27). Digital libraries are thus perceived as a reproduction of objects, whereas digital scholarly editions are a representation of works, and express the point of view of an editor (Pierazzo 45). While digital libraries seem to be perceived as collections that may contain materials for potential scholarly editions or digitized print editions, scholarly editions appear to have a greater degree of scholarly enrichment.

However, this is a very restrictive understanding of digital libraries, which aim at going beyond this kind of vision. Indeed, we can define digital libraries as resources linked to cultural or research institutions, and relying on the long-term preservation and on the promotion of heritage content, by offering services and functionalities to theirs users (Claerr and Westeel 26). Through this definition, it appears that digital libraries and digital scholarly editions share common objectives. Each proposes a model of the written heritage to promote its understanding and its dissemination to a large number of people. They both feature interfaces that link users to digital resources through services. Finally, they all aim at enlarging their scope and at engaging their users and cultural and research institutions and users are more and more compelling, as the works done by the *Devonshire Manuscript Project* or by the Australian digital library, *Trove*, exemplify. Reflections about the role of the users during the development process and users' interaction with the digital content are becoming crucial for the conception and longevity of digital resources.

However, even though some studies have been conducted (Bryan-Kinns and Blandford; Bouvier-Ajam; Kimani et al.; Bourgeaux; GMV; Blackwood), users of digital cultural resources are still an unknown public and a gap remains between the users as they are postulated by the researchers and the *real* users (Dobreva et al. 2–4). Who really are these users? What do they want to do when they access a digital library or a digital scholarly edition? What is their degree of engagement with digital content? What is the relationship, if any, between user engagement and user interface?

These questions are at the heart of the *Fonte Gaia Bib*<sup>1</sup> project, a French-Italian digital library that attempts to offer digitized editions and born-digital ones in the same infrastructure, blurring the borders between digital libraries and digital scholarly editions. In order to develop a suitable user interface for the *Fonte Gaia Bib* portal and to better understand the practices and the needs of users, a questionnaire has been disseminated in May 2016. This paper aims at presenting the *Fonte Gaia* questionnaire findings, and at proposing a reflection on their implications for the design of digital libraries and digital scholarly editions alike.

<sup>&</sup>lt;sup>1</sup> Fonte Gaia Bib (Beta version): <www.fontegaia.eu> [Accessed 24 Aug. 2017].

## 2 Background of the questionnaire: the Fonte Gaia project

As mentioned above, *Fonte Gaia* is a French-Italian project that was launched in 2009 at the Grenoble Alpes University. Its main objective is to gather French and Italian researchers in a network of exchanges and debates about Italian studies. It comprises a blog ( $FG Blog^2$ ) and a digital library (FG Bib). The latter aims at becoming a reference portal for the whole community of Italian studies, by gathering varied content (digitized and harvested books, digital exhibitions) and to include digital scholarly editions created by collaborators of the *Fonte Gaia* project. The native digital editions will not be separate projects, but will share the same identity, the same interface, and the digital editions as some of its sub-collections. From this point of view, *FG Bib* is not only a digital library, but also a hub that hosts projects and cultural initiatives, proposing an overview of Italian studies in the digital age.

As the library aggregates projects, it also aims at gathering users by building a mixed community, where specialist and lay users collaborate for the improvement and the enrichment of the digital content. For that, *FG Bib* is working on developing a set of interactive and participative services that engages users with the resource in innovative ways, i.e. via an interface that allows users to be both readers and authors of the content they access. In this context, it is essential to know the profile, the needs, and the expectations of the users in order to build a user interface that suits them and encourages them to collaborate.

The *Fonte Gaia* team has chosen a user-centred design (UCD) approach to develop its digital library. As defined by Donald Norman, Peter Morville or Jesse James Garrett, in this approach, resources or services are developed from the needs and expectations of users: products adapt to users, and not the contrary. UCD is an iterative process where users are engaged in each phase of the conception of a resource, from the analysis of users' needs to the development of prototypes and their evaluation, by applying both quantitative and qualitative methods (George 3–16; Daumal 5–7). The publication of a resource, and in our case the launch of the digital library, depends on the results of the evaluation phase, as shown in fig. 1. Indeed, if the evaluation of the first prototype (prototype a) is not conclusive, because of some troubles or a negative user feedback, the prototype has to be improved and re-evaluated, after a revision of the findings of the analysis phase. If consequently users approve the new prototype (prototype b), the latter will be launched online. Otherwise, a new iteration begins until a consensus is reached.

The analysis phase of our development process (fig. 1) is based on a comparison between an approach that leans on the users to build a design and development

<sup>&</sup>lt;sup>2</sup> Fonte Gaia Blog: <fontegaia.hypotheses.org> [Accessed 24 Aug. 2017].

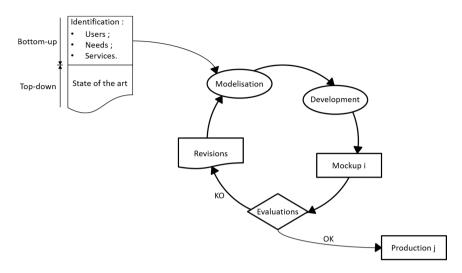


Figure 1: UCD approach of the Fonte Gaia project. Adapted from Tsakonas (56).

strategy (bottom-up), and one that sees creators of resources propose innovative services to their users (top-down). The objectives of the former strategy is to reveal, through user studies (e.g. questionnaires, interviews, focus groups), not only the needs of the users, but also their usual practices when they access a resource. The results of these user studies form the basis for the elaboration of the user interface and of the services of the digital library. Top-down approaches are based on the projections and experiences of creators, which then deliver the results of their research to their users (Salaün and Habert 37). The *Fonte Gaia* project has chosen to undertake and balance both approaches. By intersecting the results of the bottom-up and top-down strategies, we hope to find ideas that match the needs of the users, of the contents, and of the organization behind the project.

The first phase of the bottom-up approach took the form of a questionnaire that pursued the following objectives:

- Identification of the users of digital libraries, from a general point of view;
- Identification of the *Fonte Gaia* community, already gathered around the scientific blog of the project, i.e. *Fonte Gaia Blog*;
- Examination of the notion of service and evaluation of the degree of engagement of users with digital libraries.

Each goal had a profound influence on the way the questionnaire was conceived and disseminated (Leblanc).

## 3 Dissemination and results

The questionnaire has been disseminated online and translated into three languages: French, Italian, and English, in May 2016.<sup>3</sup> The ways of distribution were different according to the target groups. The *Fonte Gaia* community was reached through the project's blog and its Twitter (91 followers) and Facebook (231 followers) accounts. We can assume that the followers of the two accounts have an interest for Italian studies and for our project, and are potentially future users of *Fonte Gaia Bib*. To increase the number of potential answers, the questionnaire was also disseminated through mailing lists, other blogs and the professional networks of the project's members.

We received 67 responses. Surprisingly, few members of the *Fonte Gaia* community (21), who are gathered around the blog and the Twitter and Facebook of the project, answered to this questionnaire. Such a limited number of responses might give us some evidence about the profile of the *Fontegaianautes*, but it is certainly not sufficient to make strong hypotheses. Therefore, we devote less space to this aspect in this article, which will rather focus on the general users of digital libraries.

# 4 Those who came: sketching the profile of users of digital libraries

Judging by the responses, the user group of digital libraries is quite homogeneous: women (67%), young people between 25-34 years of age (49%), with a high educational level (60% of Master's degree), mostly in literature (44%). However, when it comes to professional activity, the results are varied (fig. 2).

Two main groups stand out: the GLAM<sup>4</sup> professionals and the academic users, which are split into researchers and PhD students. We can define this community as experts and used to dealing with written heritage. This registration of the volunteers in a well-defined professional background has a strong impact on the way digital libraries are used (Leblanc), as we are going to see it through the next sections.

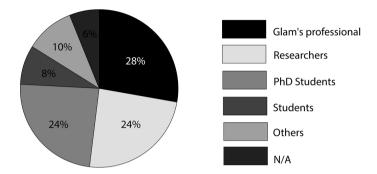
## 5 Perception of the digital libraries

#### 5.1 A Broad Perception of the Digital Libraries

Instead of giving the volunteers a single definition of the digital libraries, which could restrain their answers, the questionnaire asked them for the names of the digital libraries that they have accessed for the past six months. Their answers helped us in

<sup>&</sup>lt;sup>3</sup> The questionnaire and the blog post are available here: fontegaia.hypotheses.org/1673 [Accessed 10 Feb. 2017].

<sup>&</sup>lt;sup>4</sup> GLAM is the acronym for "Gallery Library Archives Museum".



#### Q. 34: What best describes your activity?

Figure 2: Activities of the volunteers.

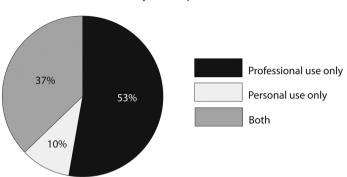
outlining their perception of digital libraries. The results are varied and show that there is no consensus on what a digital library is:

- "Giant" and general purpose digital libraries: e.g. *Gallica, Europeana, Google Books, World Digital Library*
- Specialised digital libraries: e.g. *Bibliothèques virtuelles humanistes* (BVH), *Mazarinum*
- Scholarly digital projects: e.g. Dante Online, Mandragore
- Digital scientific journal platforms: e.g. Cairn, Persée, JSTOR, OpenEdition
- Ebooks platforms: e.g. LexisNexis
- Other resources: e.g. YouTube, Wikisource

The "giant" and generalist digital libraries are the most cited projects: all of the volunteers gave the name of one of these four digital libraries. These projects are "giant" because of their large amount of gathered resources, and they are general purpose collections because of the heterogeneity of the origin, period, and format of the sources. Thus they address the needs of a variety of users (Mion Mouton 22–23) and become reference digital libraries, which might explain why they are cited so often by the volunteers.

The other digital libraries mentioned include a more specialised selection of sources. They collect sources that belong together for institutional reasons (e.g. books that are held in the same physical library), sources from a particular time period and/or written heritage of a particular type (e.g. manuscripts, books).

However, the survey also shows that many volunteers do not differentiate between digital libraries and other digital resources they use. For instance, when asked for digital libraries, they cited other projects such as online journal platforms or databases



Q.4: In which context do you typically need to use a digital library? (Multiple choice)

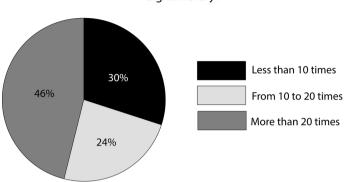
Figure 3: Context of use of digital libraries.

that cannot be called digital libraries according to our definition. The results underscore the ambiguity of the term "digital library" itself. Presumably, these other digital resources were cited because they look like digital libraries (in their appearance and based on the content they contain).

### 5.2 Digital libraries as work tools

Although the definition of a digital library changes from one user to another, one thing remains consistent: the "utilitarian vision" (GMV 25; Bonneau 51). This label, forged by *Gallica*, refers to a perception of digital libraries as tools, as resources that users access with a precise purpose for their work (e.g. research, teaching, prospection, technological surveys), and not as resources someone can access for leisure (GMV 25; Bonneau 51). The *Fonte Gaia* questionnaire might testify to this "utilitarian vision" as 53% of the volunteers claimed to access digital libraries for a "professional use only" (fig. 3).

One of the aims of the questionnaire was to identify a group of amateurs that only use digital libraries for their private research. The small number of people that declared to be using digital libraries for "personal use only" (10%) show that the *Fonte Gaia* questionnaire did not succeed in reaching this section of amateurs attested by similar initiatives, such as *Gallica* (GMV 13; Bonneau 21–22) or *Europeana* (Blackwood). This is likely the result of the way the questionnaire was disseminated. It can also be related to the fact that *Fonte Gaia* does not yet have a strong and wellestablished community of users like *Gallica* or *Europeana*. In both cases, it will be a challenge for *Fonte Gaia* to reach a better part of its potential users.



Q.1: In the past 6 months, how often times have you used a digital library?

Figure 4: Frequency of use of digital libraries.

### 5.3 A high frequency of use

The first question the volunteers were asked was about their frequency of use of digital libraries (fig. 4). They claimed to be regular users of this type of resources: the majority accessed a digital library more than 20 times in the past six months. Even though there is a sizeable part of occasional users (i.e. less than 10 times in the same period), the predominance of frequent users underlines that here we have users that are familiar with these resources. We may assume that they develop some expertise in using digital libraries, which plays a role in the way they use them.

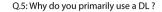
## 6 Practices of the users

This utilitarian and broader vision of digital libraries influences the choices users make when they use these resources. To illustrate this fact, we choose to focus on three different aspects: the main use of digital libraries, the search facilities and the reading habits.

### 6.1 Online reading vs Downloading

According to the questionnaire, the primary reason the volunteers access a digital library is to read documents online (fig. 5) rather than on their own computer after downloading them.

However, if we compare these results with the professional activity of the volunteers, we get a nuanced vision of the results of this question (fig. 6).



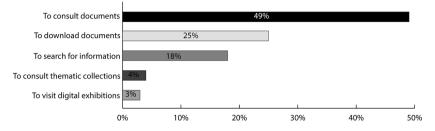
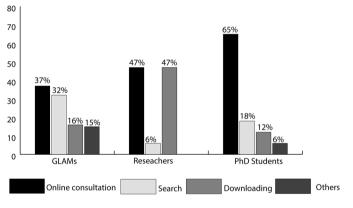


Figure 5: Main use of digital libraries.



Distribution of the main use by activities

Figure 6: Different uses for different profiles.

This graph highlights different motivations for accessing a digital library. These motivations might be linked to the activity of the users. The GLAM professionals are the most varied with their answers: all possible choices offered by the questionnaire (fig. 5) are represented. This may testify to a versatile use of digital libraries. The researchers hesitate between an online consultation and a postponed "local" reading of the resources after downloading. On the contrary, the way PhD students use digital libraries is more homogeneous: the majority claims to access a digital library mainly to consult documents online.

The reasons for these differences regarding the motivation to access a digital library can, for now, only be imagined. For instance, it could be related to a difference of conception of digital libraries, a difference of user needs, a generational gap regarding digital uses, a difference of work experience, and others.

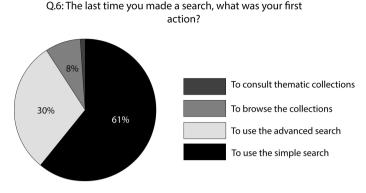


Figure 7: Use of the search functionalities.

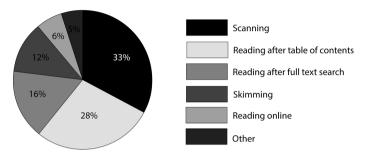
#### 6.2 The hegemony of the classic search functionalities

Question 6 focused on the main search functionalities used by the volunteers (fig. 7). The simple search obtains the highest score with 61% of the answers.

Presumably, the use of the simple search in digital libraries is, on the one hand, influenced by the Google search bar (Nicholas and Clark 90–93). The users reproduce in digital libraries what they are used to on the Web. On the other hand, we can explain the preference of the simple search by the fact that it might offer a high degree of freedom to the users in their research. With the simple search they are masters of their queries and the keywords they want to use (Dinet and Vivian 255). These results might reveal the preference of users for simple and easy-to-use functionalities, as compared with the advanced search (30%). The complexity of the advanced search forms, which assumed a high degree of knowledge about the contents provided, and the lesser flexibility it offers can explain this lack of interest from the users.

The case of browsing is interesting. This search method offers to users the possibility to browse all the collections and to filter them gradually according to their interests (author, languages, format, period, etc.). It allows seeing all the content and the way it has been organized by a digital library. Browsing is, then, considered a fast way to access information and to get unexpected results (McGann and Nowviskie 20; Varga 173). However, browsing only gets 8% of the choices. Two hypotheses can explain the fig. 7:

- A definition issue: the word *browsing*, used in the questionnaire, is a technical word that the volunteers may not know.
- A misunderstanding of the habits of the users: contrary to our notion, *browsing* is possibly not a preferred way of searching.



Q.7: The last time you read a digitized book or a digital edition, you...

Figure 8: Reading practices of the volunteers.

#### 6.3 A common way of reading the resources

Question 7 aims at identifying the main reading practices of users. The options offered to the volunteers were inspired by the typology of Annette Alder et al. in a 1998 study, and reused by Bryan-Kinns and Blandford in their 2000 study: reading the full text, skimming,<sup>5</sup> scanning,<sup>6</sup> reading the interesting parts after consulting the table of contents and reading after a full text search (fig. 8).

Considering these results, we can define the way users consult the digital resources as fast and targeted (Leblanc). Scanning got the highest score (33%), followed by reading after consulting the table of contents (28%) and after a full-text search (16%). These results suggest that users have a precise idea of what they look for and want to go directly to the information. These different types of "reading" may be influenced by several factors:

- Practices in the analog world: it is very common to consult the index or the table of contents of a paper book before reading it (Rehbein 63–64);
- Practices on the Web: influence of the search functionalities and the custom of getting the information quickly (McLoughlin 40).

The first part of the questionnaire focused on the practices of users. As we were elaborating our questionnaire, it appeared that these practices depend on several services. *Service* is a polysemous notion, but in the context of a library, we can characterize it as follows: "a service is everything that, in the existence and the

<sup>&</sup>lt;sup>5</sup> We speak of "skimming" when someone examines quickly at a text to have a general idea of its contents (Bryan-Kinns and Blandford 4).

<sup>&</sup>lt;sup>6</sup> We speak of "scanning" when someone examines quickly at a text to get a precise information (Bryan-Kinns and Blandford 4).

activity of a library, is a meeting between one of the elements of the organization and the public"<sup>7</sup> (Calenge 22). In digital libraries, services act like "interfaces" between users, digital resources, and the organization behind the project itself. These entities are mutually dependent: each one influences the way the others behave (Gilbert 11-12). It is then essential to think about this notion of service that links the others together to build an interactive digital library.

After investigating the reading and searching activities of the users and the services related to them, the next section of this paper will focus on the interactive and participative services a digital library can offer, i.e. services where users are readers and authors of the content they access.

## 7 Toward an enriched and collaborative digital library

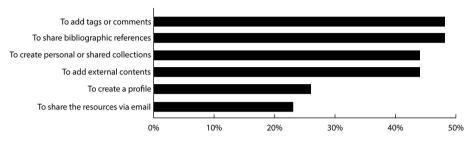
With the services proposed in the questionnaire, the goal was not only to know what people do, but also what they wish to do (Leblanc). To achieve this, closed and open questions were included in the questionnaire in order to create a right balance between the bottom-up and top-down approaches, i.e. between what people think they want to do and what we can offer them, based on the state of the art in the creation of digital libraries (fig. 1).

### 7.1 Top-down strategy: the closed questions

The first question concerns interactive services (fig. 9). The possible suggested services were inspired by the works of the Online Computer Library Center (OCLC) about social metadata in digital libraries (Smith-Yoshimura and Shein). Social metadata are metadata generated by users. They are characterized "as a way to both augment and recontextualize the content and metadata created by [G]LAMs" (Smith-Yoshimura and Shein 9). Social metadata helps the GLAMs to improve their collections and the research of other users (Smith-Yoshimura and Shein 9). Based on this definition, we may assume that social metadata services are one way to encourage interactions between the library and its users, who become collaborators in the development of the digital library.

It appears that four services have been chosen by almost the majority of the volunteers (fig. 9): adding tags and comments (48%), sharing bibliographic references (48%), creating personal collections (44%), and adding external content (44%). These results may have been influenced by the functionalities of Web 2.0 platforms (blogs and social networks). In fact, it is possible that the volunteers have selected these

<sup>&</sup>lt;sup>7</sup> Translated from French: "[...] est service tout ce qui, dans l'existence et l'activité de la bibliothèque, est rencontre entre un des éléments de l'organisation et le public".



Q.9: In your ideal DL, what activities ould you like to do among the following? (Multiple choice)

Figure 9: Hierarchy of services of improvement and interaction.

Q.20: Among the following services, which ones would like to see in a digital library? (Multiple choice)

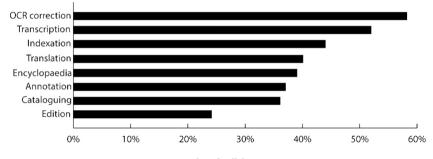


Figure 10: Hierarchy of collaborative services.

functionalities because they already know them, or because they expect to have the possibility to use them when they access a user interface (Leblanc). However, we may also suggest that there is a specific need of the users who want to cross the contents and share their knowledge with the library and perhaps also with others.

While question 9 focused on interactive services, question 20 focused on services of collaboration. As "collaborative" we defined services inspired by *crowdsourcing* initiatives where users collaborate to perform a certain task (Ridge 1–2) (fig. 10). We can identify two main collaborative services that the volunteers seemed keen on: correction of OCRed texts and transcription. The enthusiasm for these two activities can be explained by the wish to improve access to resources and to information. But, it is also possible that the volunteers have chosen these activities because they are perceived as not requiring technical or scholarly skills – even if it is not always the case for transcription (Leblanc).

Collaborative cataloguing and collaborative editing received the lowest percentage. This is surprising since we asked a group of potential experts of this task as, for instance, GLAM professionals and academic people. In the case of cataloguing, only 26% of GLAM professionals chose it, even though it is a common activity in their profession. We might explain these results by the high expertise required for the cataloguing of resources and the elaboration of editions, but we may also assume that these activities are maybe not yet seen as suitable for collaborative work.

### 7.2 Bottom-up strategy: the open question

Question 10 offered the volunteers the possibility to freely express the services that they want to see in a digital library. As opposed to the closed questions, the open one was optional. We obtained 13 answers, which we can divide in three categories:

- 1. Downloading and export services:
  - "Partial or complete exports"<sup>8</sup>
  - "Downloads of different formats and different resolutions"9
  - "Access the underlying source format"
  - "Download source files, compute images, APIs
  - "To download plain text versions of primary materials"
  - "Download as PDF"
  - "Zotero compatibility and other metadata export"
  - "To get a high quality full text OCR version"<sup>10</sup>
- 2. Search functionalities:
  - "What I essentially seek in the collections of digital works is to be able to search by keywords [...]"<sup>11</sup>
  - "The indication of the shelf number of the document in the nearest "real" library"  $^{12}$
  - "Internal search engine"<sup>13</sup>

<sup>8</sup> Translated from French: "Des exports partiels ou généraux"

<sup>&</sup>lt;sup>9</sup> Translated from French: "Téléchargement de différents formats possible et différentes résolutions"

<sup>&</sup>lt;sup>10</sup> Translated from French: "Obtenir une version OCR full text de bonne qualité".

<sup>&</sup>lt;sup>11</sup> Translated from French: "L'essentiel de ce que je recherche dans le stockage d'ouvrages numérisés est de pouvoir y faire des recherches par mots-clés. [...]".

<sup>&</sup>lt;sup>12</sup> Translated from Italian: "L'indicazione della collocazione del documento nella biblioteca "reale" più vicina".

<sup>&</sup>lt;sup>13</sup> Translated from Italian: "Motori di ricerca interni".

- 3. Interactive services and social functionalities:
  - "To have the choice of the model of recommendation (item based or social)"<sup>14</sup>
  - "It might be interesting if each resource had a contact form to report problems to the admins, ask for additional information, report mistakes etc. Likewise, having an annotation tool [...] would be a plus"<sup>15</sup>
  - "To share personal selections (thematic and enriched with commentaries, for example)"<sup>16</sup>

The results of the closed and open questions are somewhat complementary. We saw previously that users have an interest in interactive and collaborative services that lead to the improvement of the search of information. Similarly, when we look to the answers to the open question, we notice an interest for search facility and downloading services. In both cases, the notion of "search" seems to be central to the volunteers.

# 8 Conclusions and perspectives: digital libraries and digital scholarly editions

The *Fonte Gaia* questionnaire focuses on three main notions: users, practices, and services. Through these three entities, we obtained some evidence about what people do and what they wish to do when they access a digital library, and their engagement with and through the resources. These results can be interesting for digital scholarly editions as well, as both types of resources share common objectives and are very close regarding their content and their purposes in the mind of users.

Indeed, the *Fonte Gaia* questionnaire has shown that users do not make a clear distinction between digital libraries, digital journals, or digital scholarly editions. This fact has been noticed during surveys on digital scholarly editions as well. As reported by Dot Porter in a 2011 survey about how medievalist scholars use electronic texts, users do not make a clear distinction between digital scholarly editions and digitized editions, which are the main content provided by digital libraries (Porter). Successively, in a 2014 survey about digital scholarly editions and electronic devices, Aodhán Kelly noted that users do not think about the nature of digital resources: they just use them (Kelly 131).

<sup>&</sup>lt;sup>14</sup> Translated from French: "Avoir le choix du modèle de recommandation (item based ou social)".

<sup>&</sup>lt;sup>15</sup> Translated from French: "Il serait intéressant que chaque ressource possède un formulaire de contact afin de pouvoir prévenir les gestionnaires de tout problème, information complémentaire, erreur etc. de manière simple et privilégiée. De même avoir des outils d'annotations [...] seraient [sic] un plus".

<sup>&</sup>lt;sup>16</sup> Translated from French: "Proposer au partage un parcours personnel (thématique et enrichi de commentaires, par exemple)".

Through the typology of the projects used by the volunteers, which has been presented at the beginning of this paper, it appears that the *Fonte Gaia* questionnaire confirms those results. As "texts on screen look remarkably alike, despite profound differences in quality" (Shillingsburg 87) and as they overlap in the mind of users, we can wonder if users use them in the same way.

#### 8.1 General conclusions: users, practices and services

# Humanities scholars as stakeholders of digital libraries and digital scholarly editions

The interpretation of the results of this questionnaire was influenced by the "expert" profile of the volunteers. They have a strong link with written heritage and a high level of expertise in their respective fields of research. In fact, academic and GLAMs communities are the ones that give birth to digital libraries. They probably have a better knowledge about the existence of this type of resources than other potential communities of users do and could be considered as the stakeholders of digital libraries (Leblanc). It is worthwhile to note that digital libraries and digital scholarly editions have similar stakeholders: they mainly target humanities scholars (Kelly 127; Pierazzo 162), even if today there are several endeavours that attempt to involve other communities of users, such as students or members of the larger public.<sup>17</sup>

However, we may wonder if the time of dissemination (before or after the launch of a digital library) and the scope of the questionnaire might have had an impact on the high number of these two communities among the volunteers. If we compare two questionnaires, such as the *Fonte Gaia*'s and the DELOS<sup>18</sup> questionnaire (Kimani et al.), which are both generic and connected to any existing resource, we can see that not only the number of answers is similar,<sup>19</sup> but also that the profiles of the volunteers are similar: a group of young people, with a high degree of education and expertise. If we compare the *Fonte Gaia* questionnaire and the 2014 *Europeana* questionnaire, which has been disseminated several years after the launch of the *Europeana* portal,<sup>20</sup>

<sup>&</sup>lt;sup>17</sup> Amongst the projects that attempt to involve students, we can name the *Perseids* project, which is a collaborative editing platform that proposes to students and their professors to experiment the different steps toward a digital edition of ancient texts. Amongst the projects that attempt to involve members of the larger public, we can namethe *Devonshire Manuscript* project or the *Infinite Ulysses* project that target humanities scholars and members of the larger public as well, by providing helping tools to understand the texts (comments, tables, introductions...) and offer the possibility to interact with them (comments).

<sup>&</sup>lt;sup>18</sup> This questionnaire was elaborated by the DELOS: Network of Excellence on Digital Libraries, a research project funded by the European Union (Kimani et al. 76).

<sup>&</sup>lt;sup>19</sup> The DELOS questionnaire received 45 answers.

<sup>&</sup>lt;sup>20</sup> The *Europeana* questionnaire could be accessed through a link on the homepage of *Europeana*, so that

the results are different. The *Europeana* community is more varied (including e.g. public sectors, information services, retirees) than the one of *Fonte Gaia*. It includes members of the wide public (Blackwood), that general questionnaires such as *Fonte Gaia* or DELOS do not seem to be able to reach.

These comparisons underline the difficulties of "ante-digital library" questionnaires<sup>21</sup> in identifying communities other than the academic world and the GLAM sectors. We may suggest that these other communities, part of the wider public, do not consider themselves as users of digital libraries, but as users of a specific digital library. We may also assume that the label "digital library" itself, used in the *Fonte Gaia* questionnaire, does not make sense to this section of potential users because it is a technical term mainly used in the Digital Humanities and the library context. Therefore, it is a challenge for digital library projects to identify the wider public and to develop a suitable platform for them.

#### Common practices: the case of reading

The comparison of users' practices between digital libraries and digital scholarly editions is difficult due to the lack of user studies for the latter (Pierazzo 160). However, several works have been published about the way people read digital scholarly editions (Vandendorpe; Rehbein; Rasmussen). On this subject, Rasmussen identifies three roles. The first role is the *reader*, who focuses her attention on the understanding of a work, whether it is for leisure or for professional purposes. The second role is interested in the intertextuality and becomes a *user* as she pays more attention to the text structure and to the tools that allow her to analyse it. Finally, the third role would be the *co-worker*, who is characterized by her involvement at some point in the editing process (Rasmussen 126–128).

These roles can be applied to users of digital libraries: *readers* are only interested in the content and spend little time in the digital library; *users* are more involved and seek for tools to analyse the content; *contributors* participate in the improvement of the data and the enrichment of the digital library. With digital scholarly editions, the focus of each role is on the links between texts and works (Rasmussen 126–128). For digital libraries, it is on the relation between content, services, and interface. The *Fonte Gaia* questionnaire helps us to refine the nature of these roles by giving us the point of view of users on what they think they do when they use digitized or digital editions, and what they want to do with them.

The practices of users as they appeared in the questionnaire might be of interest for the definition of the *user role*. The volunteers claim to do scanning or to use

any users can answer easily.

<sup>&</sup>lt;sup>21</sup> By this, we refer to questionnaires that have been disseminated before the launch of a specific digital library.

the index or full-text search. Previously in this paper, we interpreted these results as targeted and fast reading. In light of the reading studies, we can go beyond by saying that readers search more than they read and that they "hunt" for information (Vandendorpe 205; Rasmussen 127). To improve this way to "read" texts and to assist users, we can imagine for both digitized and digital editions to provide access to dictionaries or offer a semantic full-text search<sup>22</sup> that can help users to not only search by word-forms, but also by their meaning.

We can note that these results are similar to the findings of the DELOS questionnaire in 2009, but also to the ones obtained by older studies on digital libraries (Furnas and Rauch; Bishop; Bryan-Kinns and Blandford). This coincidence may testify to a permanence of the practices of the users, independently of the type or of the content of digital libraries themselves.

We can also notice a certain continuity in practices between digital libraries and the rest of the Web. In fact, users might reproduce practices that they have developed in other contexts, such as simple search or scanning for example. Users may not perceive digital libraries as being different from other digital resources on the WWW, such as digital scholarly editions. Thus, digital libraries do not imply specific uses, but are used as any other digital resources.

### Interactive and collaborative services: the users' point of view

As far as the services are concerned, we have identified the willingness of the volunteers to be involved in the lifecycle of digital content. Their offer of engagement takes different forms (Leblanc):

- Improvement of the quality of documents (indexing, OCR correction)
- Improvement of the description of resources (comments, addition of external content and of bibliographical references)
- Involvement in the editing process (transcription)
- Reorganisation of the collections of the digital library (sharing of personal collections)

These findings give us some clues about the way users want to be involved with cultural resources or, in other words, how they want to be "co-workers". Digital libraries and digital scholarly editions may both benefit from these services proposed by the volunteers: such services would improve the quality of the data, and would contribute to the development of an active and dynamic community of users (Smith-Yoshimura and Shein 9, 11–12). For digital libraries more specifically, these findings

<sup>&</sup>lt;sup>22</sup> We mean by "semantic full-text search" an enriched full text search that offers to users the possibility to search a word and its synonyms. For example, if a user is interested by the word "vessel" in a text, the interface will suggest him to search "boat" or "steamer" as well. In this way, the full-text search can enlarge the perspectives of users and help them to have better searches.

seem to suggest that users want to be engaged with the digital contents and the digital library itself, through a strong collaboration with the librarians and the researchers behind the resource.

A wish for collaboration between users and librarians appears through the choice of interactive and collaborative services, where each part brings its own knowledge and benefits from the knowledge of the others. However, the willingness to collaborate with other users is not clearly stated. Indeed, selecting collaborative OCR correction or collaborative transcription does not mean that users want to collaborate with each other. Projects that have already experimented with collaborative efforts (such as Trove or Transcribe Bentham) noticed that each user only works on one document and there are few cases where several users work on the same resource (Causer and Wallace, paras 71–72). We may, then, speak of cooperation rather than collaboration, because each user works on his side without sharing knowledge or skills with others. However, digital libraries might benefit from the creation of communities where each member collaborates on the same resources: it may strengthen their image of working space for a specific field of research where knowledge and ideas spring from exchanges and sharing between different types of users (Hord 5-7; Misanchuk and Anderson 7–8; Choi and Pak 359–360; Kozar 16-17)<sup>23</sup>. However, how to achieve this is not yet clear.

# 8.2 Design implications: digital libraries as interfaces for digital scholarly editions? The case of *Fonte Gaia Bib*

The findings of the *Fonte Gaia* questionnaire highlight some relationships between digital libraries and digital scholarly editions that can lead to the integration of digital scholarly editions into digital libraries. This is what *Fonte Gaia Bib* is attempting to do. However, building an interface for both digitized content and digital scholarly editions comes with several challenges. The first one concerns the editing process: is a digital library a place for editing? We currently develop our digital library with the Content Management System (CMS) Omeka.<sup>24</sup> Among all the plugins offered by this CMS, there is only one relevant to digital scholarly editions: the TEI display plugin.<sup>25</sup> We can note that this plugin only concerns the editions' display, and not the editing. The set of Omeka plugins currently available draws an image of what a digital library

<sup>&</sup>lt;sup>23</sup> I am also grateful to Emmanuelle Morlock and Adeline Levivier from the HiSOMA laboratory (Lyon, France) for our exchanges about this subject.

<sup>&</sup>lt;sup>24</sup> Omeka. <omeka.org> [Accessed 2017-09-01]. Omeka is a content management system maintained by the Roy Rosenzweig Center for History and New Media (George Mason University, Virginia). It is mostly used by GLAM institutions, because it answers to their needs to manage large and varied collections, to display those collections in innovative and pedagogical ways (viewers, digital exhibitions) and to preserve them through hierarchical classifications and standard metadata (Dublin Core).

<sup>&</sup>lt;sup>25</sup> TEI Display plugin: <omeka.org/codex/Plugins/TeiDisplay> [Accessed 2017-08-29].

(or a cultural website in general) is and what it can do. The absence of an editing plugin suggests that it is not down to digital libraries to offer such service. Besides, when we analyse the digital libraries that provide digital scholarly editions (BVH, CUDL), we notice that they only focus on display problematics: the editing process is done elsewhere behind closed doors. This paints a picture of digital libraries as resources for exhibitions and not for the creation of new knowledge. It seems that embedding an editing service could possibly question the nature and the role of digital libraries.

The display of digital editions is also challenging for digital libraries because it seems difficult to provide a tool that manages both digital and digitized editions. Indeed, digital editions have very specific components (critical apparatus, display of several witnesses) and require advanced tools (glossaries, concordances, image manipulation, etc.) which are not required by digitized editions (Rosselli Del Turco, paras 25–29; Pierazzo 176). Besides, digital editions are the product of many disciplines which can have their own editing traditions and use different models (Pierazzo 176). Therefore, if a common user interface will not disturb users in their navigation (Rosselli Del Turco, para 7), it will blur these differences that make the wealth of scholarly digital editions (Pierazzo 176).

The solution chosen by *Fonte Gaia* is to dissociate the interface of the digitized editions (the digital libraries) and the scholarly digital editions, which are both aggregated inside the digital library and satellite projects that gravitate around it. Digital editions are related to digitized content of the digital library but a clear distinction will be made with the digitized content. They will share common services (enriched and active reading, participative services), but will also have specific ones that reflect their own characteristics (such as facsimile-digital edition alignment, viewer of several witnesses, etc.). In this way, *Fonte Gaia Bib* appears as a hub that both gives a common identity to its contents and respects their own specificities.

The findings of the questionnaire reveal priorities and expectations of the volunteers. These findings are interesting for the design of digital libraries and digital scholarly editions as well. It is then important that these findings are considered in the development of *Fonte Gaia Bib*. However, the services that the volunteers have neglected are also important. We have to understand why these services received less interest: is it because users do not need them? Or is it because the way these services are currently developed does not correspond to the user's needs? All these questions lead to the next phases of the *Fonte Gaia* user studies in which the objective is to explore the results of the *Fonte Gaia Bib* questionnaire through a series of interviews, focus group and usability tests. The goal is to collect data which will help us build an interface that suits its users.

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## 9 Appendix: The Fonte Gaia questionnaire

Launched in 2009 by the Pierre Mendès France, the Stendhal University and the CADIST Language, Literature and Italian Civilisation of the University library of Grenoble, *Fonte Gaia* is a multi-partnership project about digital humanities and Italian Studies. It is composed of a blog, *Fonte Gaia Blog*, and of a digital library, *Fonte Gaia Bib*, that will gather digitized books and enriched digital scholarly editions.

This digital library is currently under development and in this context, the team is working on studying the users of digital libraries, in order to identify their profile and their needs, and then to improve the interface and the services provided by the digital library.

This survey is also part of a PhD thesis pertaining to the users of digital libraries and their interfaces. The results, which will remain anonymous, will be the subject of several publications.

### You and the digital libraries

Q.1: In the past 6 months, how often times have you used a digital library?

- · Less than 5 times
- 5-10 times
- 10-20 times
- More than 20 times
- I can't recall

Q.2: Which digital libraries did you use?

Q.3: What type of resources do you primarily consult? (Multiple choice)

- · Digitized books
- Digital scholarly editions
- Genetic editions
- Iconographic documents (reproduction of pictures, photography, engraving...)
- Videos
- Audios

Q.4: In which context do you typically need to use a digital library? (Multiple choice)

- · Research or teaching activities
- Personal research
- To fulfil my need for curiosity and/or knowledge
- Other: .....

Q.5: Why do you primarily use a digital library?

- To consult documents (books, pictures...)
- To download documents
- To search for information
- To consult thematic collections
- To visit virtual exhibitions
- Other: .....

Q.6: The last time you made a search, what was your first action?

- To use the simple search
- To use the advanced search function
- To browse the collections
- To consult the thematic collections
- Other: .....

Q.7: The last time you read a digitized book or a digital edition, you...

- Read the full text online
- Skimmed the text
- Scanned the text to search precise information
- Only read the parts that interested you after consulting the table of contents
- Only read the parts that interested you after a full-text search
- Other: .....

Q.8: When you download a document, what format do you prefer?

- Low resolution images (.jpeg)
- High resolution images (.tiff)
- PDF (.pdf)
- E-Books (.epub)
- You never download documents

Q.9: In your ideal digital library, what activities would you like to be able to do among the following? (Multiple choise)

- To add tags or comments to the resources
- To add external contents to the resources (bibliographic references, hypertext links...)
- To share bibliographic references about a resource or a topic
- To create a profile (with a mailbox, a consultation history, bookmarks...)
- To create personal or shared collections using the resources of the library
- To share the resources via email or via the social networks

Q.10: Would you like to see other services that are not in the previous list? Q.11: Would you like to be able to work on the resources, hosted by the digital library, in a personal workspace with advanced tools (confrontation of resources, production of digital editions...)?

- Yes
- No

Q.12: What device do you mainly use when you visit a digital library?

- Computer
- Laptop
- Digital tablet
- Smartphone

## About The Fonte Gaia digital library

Q.13: Prior to participating in this survey, did you know of the Fonte Gaia digital library?

(If Yes, go to the Q.14; if No, go to the Q.17).

- Yes
- No

Q.14: If yes, how did you learn about it?

- Blogs
- Institutional websites (libraries, universities...)
- Social Network (Facebook, Twitter)
- Mailing list
- Through a search engine
- Through a friend, a teacher, a colleague...
- Other: .....
- Q.15: Do you intend to make use of FGBib?
  - Yes
  - No

Q.16: If yes, why do you wish to use FGBib?

- · For your research or teaching activities
- For your personal searches
- Out of curiosity about the project and its contents
- Other: .....

## Let's speak about collaboration

Q.17: Have you already taken part in a *crowdsourcing* project (collaborative transcription, OCR corrections, tagging...) in Social Sciences or Humanities? (*If Yes, go to the Q.18; if No, go to the Q.19*).

- Yes
- No

Q.18: If yes, in which of the following projects have you already taken part? (Multiple choice)

- Transcribe Bentham (University College of London)
- What's on the Menu ? (New York Public Library)
- Old Weather (National Maritime Museum)
- Trove Australian Historic Newspaper (National Library of Australia)
- Correct (Gallica BnF)
- Waïsda ? (Netherland Institute for Sound and Vision and Amsterdam University)
- Ancient Lives (University of Oxford)
- Papers of the War Department (RRCHNM, George Mason University)
- *DIY History* (University of Iowa)
- Others: .....

## Q.19: If not, why?

Q.20: Among the following collaborative services, which ones would like to see in a digital library? (Multiple choice is possible)

- Collaborative transcription
- OCR correction
- Collaborative translation
- Collaborative indexation (tagging)
- Collaborative annotation
- Collaborative edition
- Collaborative cataloguing
- Collaborative encyclopaedia
- Other: .....

## Fonte Gaia Blog

Q.21: Do you know the Fonte Gaia Blog? (If Yes, go to the Q.22; if No, go to the Q.25)

- Yes
- No

Q.22: If yes, how do you learn of it?

- Other websites
- Social networks
- Through a search engine (like Google)
- Thanks to a friend, a colleague...
- Other: .....

Q.23: How often do you visit the blog?

- Daily
- On a regular basis (at least once per week)
- When a post interests me

Q.24: What topics are you interested in?

## A little bit about you

Q.25: Are you...

- A man
- A woman
- Prefer not saying it

Q.26: Your age

- 15 to 18 years old
- · 19 to 24 years old
- 25 to 34 years old
- 35 to 44 years old
- 45 to 54 years old
- 55 to 64 years old
- More than 65 years old
- Prefer not saying it
- Q.27: What is your country of birth?

Q.28: Your country of residence is it the same as your birth country?

- Yes
- No
- Prefer not saying it

Q.29: If not, where do currently reside?

314

Q.30: Do you speak several languages?

- Yes
- No
- Prefer not saying it

Q.31: If you do, which ones?

Q.32: What is your awarded qualification?

- None
- A-levels
- BA/Sc Degree
- MA/Sc Degree
- PhD
- Other: .....
- Prefer not saying it

Q.33: What was your field(s) of study? Q.34: What best describes your activity?

- Information Technology
- Librarian, archivist, museum worker
- Book trade
- Primary or secondary education
- Higher education
- Unemployed
- Other: .....
- Prefer not saying it

Q.35: If you are working the primary, secondary or higher education sector, what is your position?

- Teacher
- Professor
- Researcher
- Student
- PhD student
- Other: .....
- Prefer not saying it

Thank you for your participation to the Fonte Gaia survey!

The Fonte Gaia project wants to establish a representative group of users to evaluate and improve the beta version of its digital library, through interviews, focus group and usability tests. If you are willing to take part in this experience, please contact us.