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Modelling Changes in Diaries, Correspondence and Authors' Libraries to support research on reading: the READ-IT approach¹

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Abstract

Diaries, correspondence and authors' libraries provide important evidence into the evolution of ideas and society. Studying these phenomena is connected to understanding changes of perspective and values. In this paper we present the approach adopted by the READ-IT project in modelling changes in the contents of diaries, correspondence and authors' libraries related to reading. By considering these three types of sources, we discuss the use of the data model to permit the study and increase the usability of sources containing evidence of reading experiences, highlighting common challenges and patterns related to changes to readers and to the medium of reading when confronting historical events.

1 Introduction

Diaries, correspondence and authors' libraries provide important evidence into the evolution of ideas and society. The archives and collections that form the cultural heritage of Europe contain plentiful examples of these types of sources. A significant topic in many of these sources is the discussion of what their creators read. The study of the cultural heritage sources that discuss reading is connected to understanding changes of perspective and values through the interaction between their creators and other people. These changes become significant from two perspectives: how on a personal level events and changes in society are reflected on the changes and evolution of a person, and on a comparative level across times and different societies.

The READ-IT project has the aim of addressing macroscopic questions [1] about the shaping of the identity of European readers [2], and more specific questions about the impact of reading on the shaping of an era, confronting historical events, defining the identity of a population or the construction of a public discourse. As diaries, correspondence and authors' libraries are important sources of evidence for different types of research enquiries, READ-IT aims to facilitate collaboration and multidisciplinary research through the sharing of annotated resources.

READ-IT (Reading Europe Advanced Data Investigation Tool) is a 3-years (2018-2020) transnational, interdisciplinary R&D project funded by the Joint Programming Initiative for Cultural Heritage that will build a unique large-scale, user-friendly, open access, semantically-enriched investigation tool to identify and share ground-breaking evidence about 18th-21st century Cultural Heritage of reading in Europe (<https://readit-project.eu/>). This contribution is framed within the first-year activities of READ-IT aimed to build a convergence between different case studies and research teams on a shared conceptualisation of the phenomenon of reading, which will be used to inform the development of the technical tools.

To facilitate research on shared sources, READ-IT activities include the definition of a data model for annotating cultural heritage sources that could be used as meta-language across disciplines. By having annotations defined within a shared conceptual framework, researchers from different fields will be able to identify and retrieve data from the READ-IT pool of sources and to share their work with the community of Humanities researchers. This process will increase the visibility and usability of cultural heritage sources for research. Thus, the main challenge for modelling the reading

¹ This work was partially supported by Reading Europe – Advanced Data Investigation Tool (READ-IT) is funded by the JPI Cultural Heritage project under the European Union Horizon 2020 Research and Innovation programme (grant agreement No 699523).

experience in READ-IT is to be able to define a set of shared concepts with a universal value, such as defining a way to capture changes within diaries, correspondence and authors' libraries as sources of evidence for reading experiences.

Previous similar Digital Humanities projects, such as UK-RED, LED and EU-READ, had a strong focus on supporting collaboration between researchers in annotating and managing resources. READ-IT aims to support research by addressing the phenomenon of reading. The focus on changes and the evidence of change in the sources has been addressed in READ-IT as a set of requirements driving the modelling of the reading experience. Specifically, we investigate:

- What are the changes in the reading testimonies reported in diaries, correspondence and authors' libraries?
- What are the concepts in common between these three types of sources and how can these be represented?
- How can we study these changes through the use of shared annotated sources?

In this contribution, we present how the study of reading in diaries, correspondence and authors' libraries has been addressed in previous models of reading and compare the READ-IT model with the concepts and approaches adopted in relevant conceptualisations such as FRBR and LED. Specifically, we present the physical changes in the circumstances of reading, the changes to the reader as a person and as part of a society, and the changes in the medium providing access to the content and discuss how these phenomena can be encoded in the READ-IT data model. Lastly, we discuss how the proposed annotation system can be used to study change at individual and collective scale.

The rest of the paper is structured as follows. Section 2 presents the model of reading and the correspondence between its main concepts and the concepts of FRBR [3] and LED [4]. Section 3 introduces the three case studies about the study of diaries, correspondence and authors' libraries. Section 4 illustrates how the READ-IT model can be used to address changes in the three case studies. Lastly, Section 5 present a discussion about the potential contribution of using the READ-IT model in addressing this family of case studies and sources, its current limitations and final remarks about future challenges.

2 The READ-IT model of Reading

The READ-IT model of reading had been developed adopting a design research approach, considering the different perspectives of the research disciplines as stakeholders and the data model as a meta-language (object of the design research) aimed to support their collaboration and the interoperability of the outputs of their research activities [5]. The approach adopted combines the theoretical analysis of reading [6-11] with the analysis of the sources of reading experiences (e.g. diaries, correspondence, author's libraries) to identify the key concepts and relations of the anatomy and dynamics of the reading phenomenon. The development of the model is being framed in an agile-like process of incremental update and evaluation. Currently, the model is at a consolidating stage after two cycles of development and validation, but it will be further updated to incorporate emerging requirement from the READ-IT case studies [2].

The current version of the model of reading (V1.5) combines three different perspectives on reading: 1) as an action, 2) as a process and 3) as an experience. By adopting these three lenses, the phenomenon of reading has been deconstructed in its foundational elements, and then reconstructed in a unifying theory of reading based on an cognitivist ecological view of reading [12-13] with a strong focus on a) the reader's personal perspective and b) the embodiment of the action in a physical and social environment [14]. Summarising, the resulting model provides a new metaphor of reading as the act of keeping a balance between the physical and cognitive activities of reading and the external forces mediating or interfering with the reading (reading as niche).

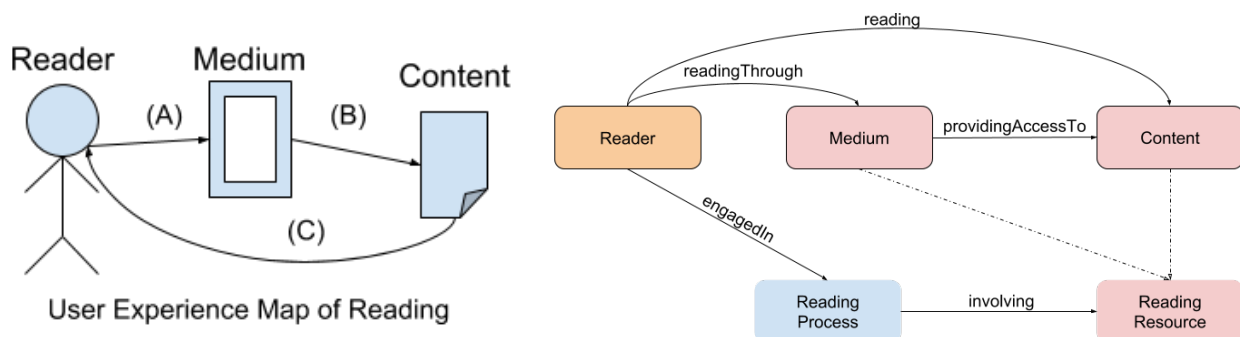


Fig. 1. On the left, the three-fold interaction of reading: (A) Reader with Medium, (B) Reader in accessing to the Content through the Medium, (C) Reader with the Content. On the Right, the schema encoding the three interactions.

Reading as Action. As action, the Reader is the actor of the action, while the Content (e.g. Moby Dick) has the role of object of the action and the Medium (e.g. book) has the role of means facilitating or impeding the action mediating the interaction between the actor and object.

The act of reading configures three distinct types of interactions between Reader, Medium and Content:

- Reader reading through Medium
- Medium providing access to Content
- Reader reading Content

As reading is a time-consuming and intermittent action (i.e. interrupted and resumed in different places at different times), the action of reading is implemented through a Reading Process, in which the Reader is *engaged in, involving* a Reading Resource.

Reading as Process. The act of reading is a dual-track process involving (a) a physical process of manipulating a Medium with the aim of perceiving the text encoding of the Content and (b) a cognitive process of elaboration of the Content aimed at rebuilding its meaning and consolidating concepts and ideas within the Reader’s memory. Furthermore, concerning the semiotic analysis of text, reading performs (i) an analytical reading aimed at rebuilding the author’s intended meaning and (ii) a performative reading of the situation aimed at “*filling the gap*” with personal experience and knowledge. In this frame, we consider different types of engagement of the Reader as the number of processes, see **Fig.2**:

- a) *dedication*, the engagement in the physical process, **perception** of the content
- b) *commitment*, the engagement in the cognitive process, semiosis of meaning
 - i. *focus*, the engagement in the **analysis** of the meaning within the content (*proposition analysis*)
 - ii. *transportation (performance)* [9,11], the engagement in the situation evoked by the content enriched by the memory and experience of the reader (*situation analysis*)

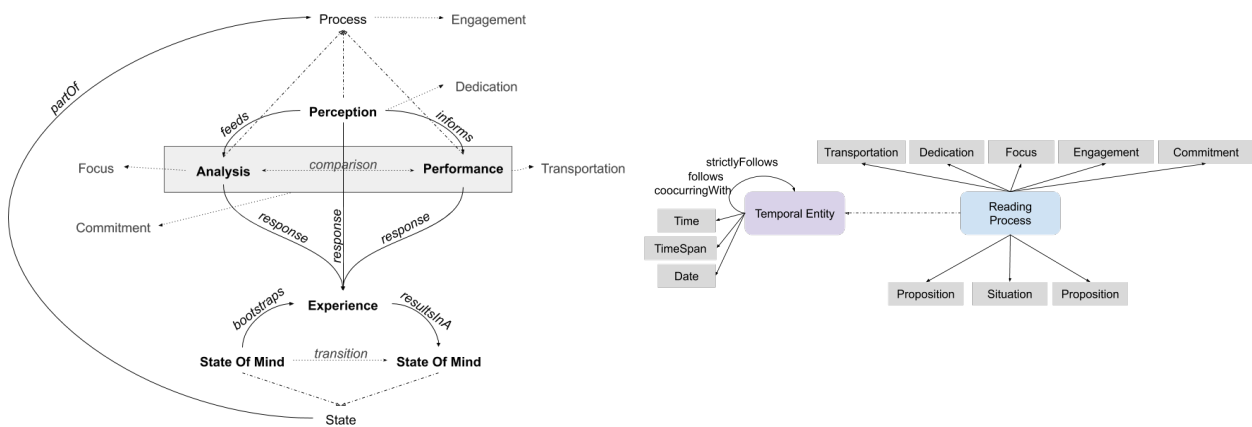


Fig. 2. On the left, the conceptual model of the process of reading connecting perception, analysis and performance with the experience of reading as change of state of mind. On the Right, the schema encoding the process of reading as a Temporal Entity characterised with the four type of engagement and two type of cognitive processes.

A Reading Process is a Temporal Entity as it is characterised by a time and duration, **Fig. 2**. The instances of Reading Process are time related, e.g. *follows, precedes*.

As an intermittent activity, Reading is carried out as sessions (Reading Session). Furthermore, during each session, the effects of the interaction with the content are multiple as the reader navigates situations and arguments (Reading Experience). In READ-IT, we address the dynamics of the reading process by defining the concepts of (**Fig. 3**):

- Reading: a collection of reading sessions of the same work (first or one of multiple reading), sharing a context, such as being part of the same activities, addressing the same aims or approached with an overall state of mind
- Reading Session: a chain of Reading Experiences, an interaction between event and action delimited by the opening and closing of a reading resource
- Reading Experience: the cognitive activity of reading in a physical context

Reading, Reading Sessions and Reading Experiences are Reading Process(es) and therefore Temporal Entity(ies) as well. Thus, a Reading can *precede* or *follow* another Reading, Reading Sessions and Reading Experiences can be sequentially ordered. Furthermore, Experiences are *part of* Sessions, and Sessions are *part of* Readings, and, on the other side, a Reading is the *situation of* several Sessions, which are *situation of the* Experiences of reading.

Reading Processes are *situated* in a physical and social environment. We encode the external situation using the concept of Event, characterised by *Place* and *Conditions*, comparison relations, e.g. *better than, similar to*, and temporal relations as well. We defined Reading Process a specialisation of Event to encode an important pattern of reading experiences: description of acts of reading by comparing with other reading experiences. The comparison of Reading

Processes can be between different Reading(s), but also between the different type of processes of reading (cognitive and physical, analysis and situation).

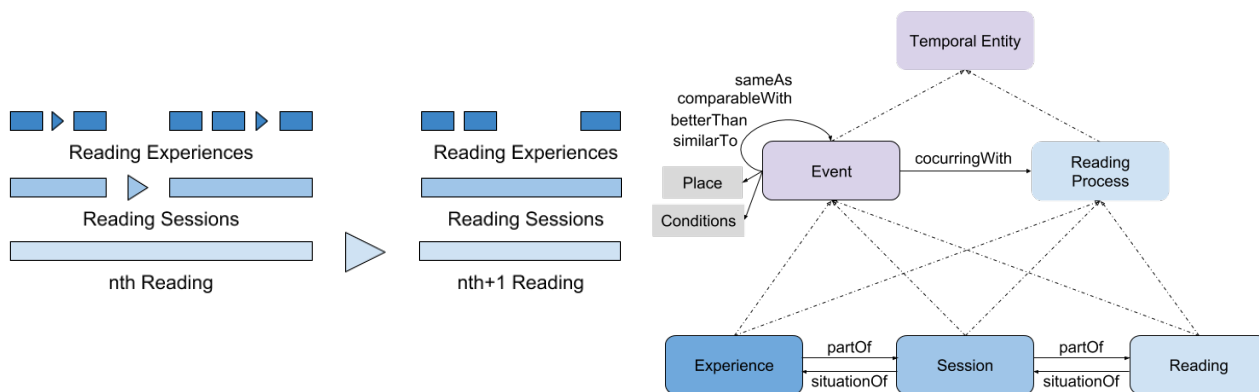


Fig. 3. On the left, a conceptual schema representing the dynamic of readings, relating Readings, Sessions and Experiences in terms of sequence and of inclusions. On the Right, the schema encoding Experience, Session and Reading as specialisation of Reading Process, and Event.

Reading as Experience. We consider an Experience a piece of evidence of a change of State of Mind of the Reader, as a result of the interaction of the Reader with Content and Medium, see Fig. 4. With State of Mind we encode all evidences related to a cognitive state of the Reader, such as *Emotion*, *Remembrance* or *Self-reflection*. A Reader's State of Mind could be *involving* a Medium or a Content (Reading Resource) motivated by personal and social circumstances, such as a gift to the Reader. Thus, a Reading Resource could have a special *meaning* for the Reader.

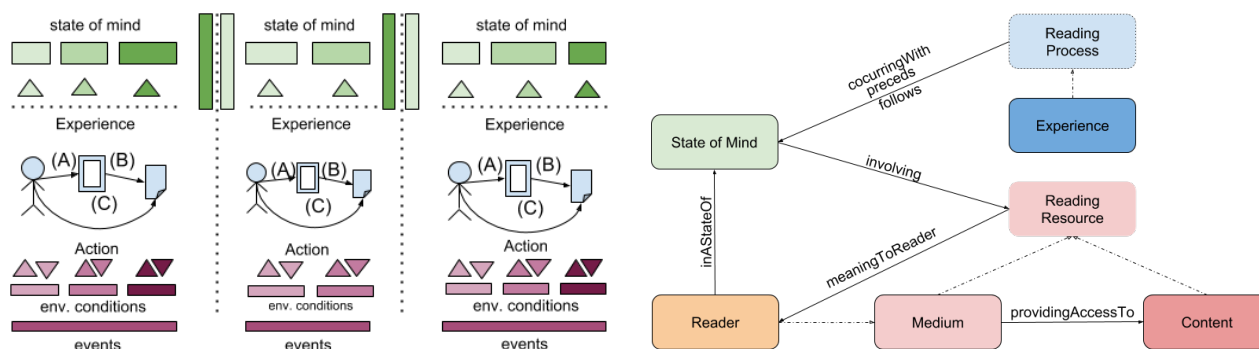


Fig. 4. On the left, a conceptual scheme representing how the changes in the reader's state of mind is the result of the reader-medium-content interactions, mediated by the environment conditions and co-occurring events, and how the resulting state of mind can be the premise of a new reading session. On the Right, the schema encoding the temporal relations between reading process and states of mind of the reader, and the relations between reading resources and state of mind and the reader

2.1 FRBR

The Functional Requirements for Bibliographic Records (FRBR) is a standard for the representation of bibliographic resources. FRBR provides a conceptual framework of four main concepts: work, expression, manifestation and item [3], see Fig. 5 (left), representing a form of consensus on the anatomy of reading contents. Moreover, the adoption of FRBR enables the connection of the reading model with a wide range of book catalogues, such as the French National Library. On the other hand, FRBR addresses the phenomenon of content production (e.g. versions, translations), societal aspects of books (e.g. editions and censorship) and the physicality of books, but it does not include elements related to the use of contents (i.e. reading).

The READ-IT concept of Content is represented in FRBR by the two concepts of *work* and *expression*: the creative work as conceived in the author's mind and its realisation through one specific form (expression). In FRBR, the READ-IT concept of Medium is captured by the two concepts of *manifestation* and *item*: the first is the form of the physical embodiment of the *expression*, e.g. the first edition of *La Montagna Incantata*, translation of Ervino Pocar published by Acquerelli, while the *item* is one of the instances of the *manifestation*, e.g. my personal copy stolen from my father. Moreover, FRBR defines also the relations (*has a subject*) between a work and other concepts, such as work,

person, corporate body, concept, object, event, place, expressions, see Fig. 5 (right). In this regard, these FRBR relations can be used to connect a Reading Experience with concepts, objects, event or places topics of a Content.

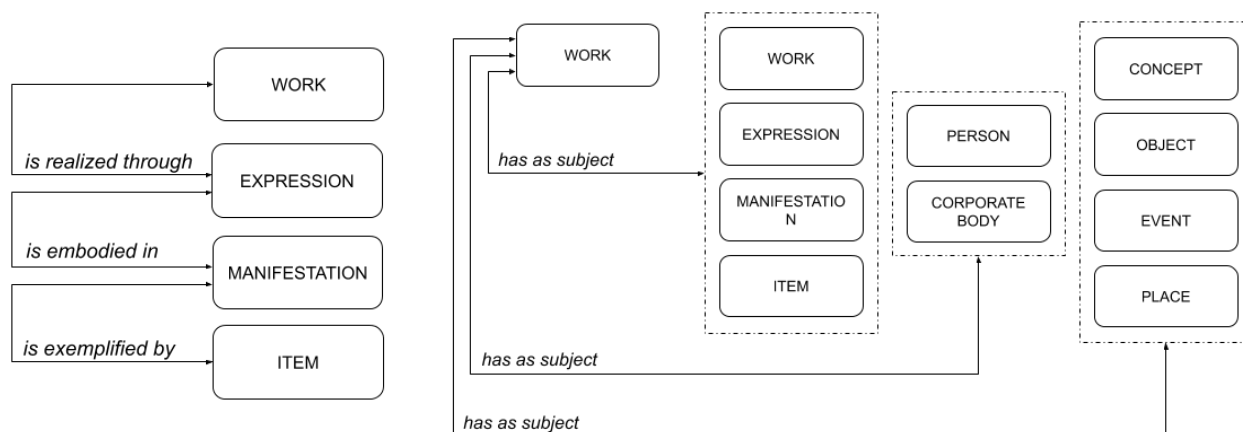


Fig. 5. On the left, the relations between work, expression, manifestation and item in FRBR, reproduction of the original schema from IFLA [3]. On the Right, in FRBR a work can have *has a subject* a set of concepts, reproduction of the original schema from IFLA [3].

The FRBR and the READ-IT models are compatible at a conceptual level, and adoption of FRBR in READ-IT model provides a deeper conceptualisation of Medium and Content. Specifically, we consider item and manifestation specialisation of Medium, and of expression and work specialisation of Content, and we generalise the FRBR relations *subject of* to the superclass Content. On the other hand, FRBR has a narrow focus on bibliographic resources, while the READ-IT concepts of Content and Medium are meant to be general enough to encode different and emerging types contents and reading devices (e.g. blog, post-it, scripts, e-readers).

2.2 UK-RED

The Reading Experience Database (RED) was devised by Simon Eliot in 1993. It stemmed from the realisation that a topic as vast as the history of reading needed as large and representative a corpus of evidence as possible to support research in the field, and that this corpus could be a database made up of contributions collected from individual researchers [15]. RED was officially launched at The Open University in 1996 and, with the support of funding from the UK Arts and Humanities Research Council (AHRC), relaunched as a public-facing, searchable web resource in June 2007 [16]. Since its inception, RED has encouraged crowdsourcing: volunteer contributors have been able to input new contributions directly into a web-based version of the contribution form. RED currently has over 34,000 unique records, many of them contributed by interested members of the public. As a collaborative tool, RED was mostly focused on the management of contributions (sources and annotations). On the “experience” aspect of reading, RED provided an ‘evidence field’, a free-text box in which contributors were asked to enter the evidence recording the reading experience (e.g. a transcription of a diary entry, or part of a letter, or a reader’s marginalia). Then, the contributor could provide information about the personal, spatial, and temporal relationships underlying the reading experience, such as the reader’s name and vital statistics, the title and format of the text being read, and the date and place where the reading experience took place.

READ-IT presents an opportunity for creating a more comprehensive, representative, and technically sophisticated iteration of the RED idea. Transnational in scope and unlimited in time frame, it will enable the comparison of reading habits and practices across time and across national boundaries. It will allow for the modelling of a range of forms of evidence beyond the purely textual. It will have a much more secure and less labour-intensive system for entering and reviewing new contributions. Finally, it will present users with multiple avenues into the data beyond a simple, linear list of search results, utilising new innovations in UI to make the most of the rich data within.

2.3 LED

The Listening Experience Database (LED) is a semantically enriched, machine-readable dataset about music events and records of the experiences of listeners [4]. Rather than on text, LED focuses on audio contents, but the overall objective is similar to READ-IT: the study of experiences. Moreover, in term of type of content, LED and READ-IT overlap in relation to collective reading, audiobooks and any form of reading aloud.

In LED, the concept of listening experience is defined as a subtype of event and an action with an agent and a subject, a performance, situated in an environment, place and time, see Fig. 6 (left). Furthermore, LED provides a description of the Agent in terms of group, location, religion, social status, date of birth and of death. The scope of LED is the

management of sources, of activities of collaborative annotation, see **Fig. 6** (right), and the interoperability with existing catalogues of sources and of musical contents.

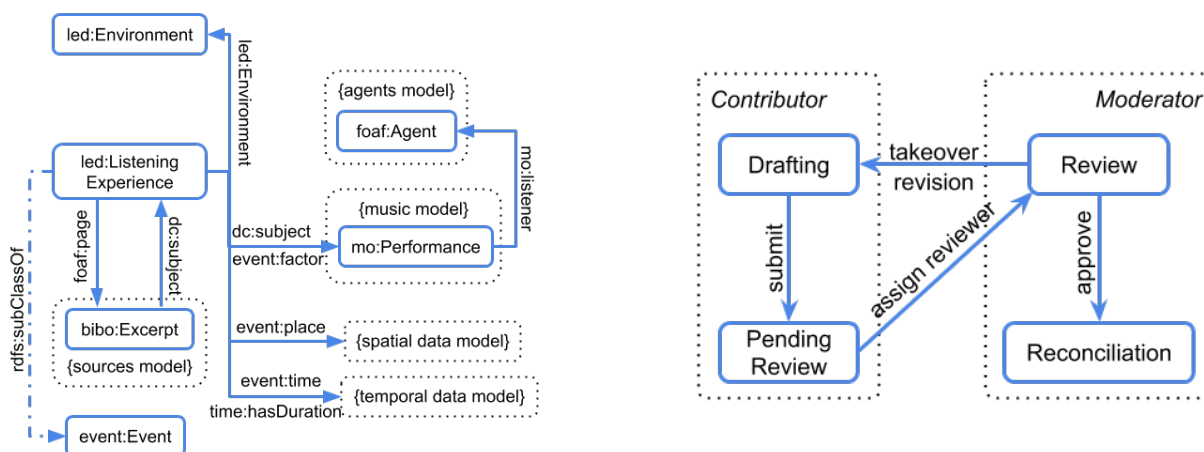


Fig. 6. On the left, the ontological model of listening experience in LED, reproduction of the original schema from Adamou et al. [4]. On the Right, the management workflow of entity data, reproduction of the original schema from Adamou et al. [4].

As a follow-up of LED, in READ-IT we moved the focus of the model from the management of sources and research activities to the object of the research: the reading experience. In this regard, READ-IT introduces the concepts of State of Mind of the Reader, and defines and Experience within the situation of a broader view as an articulation of Sessions and Experiences and Readings defining an ecology of experience of the Reader. Thus, experiences are multiple during a same session and several sessions are interconnected providing the possibility to study the dynamic evolution of the experience.

3 Reading in Diaries, Correspondence and Authors' Libraries

In this section we briefly discuss the relevance of diaries, correspondence and authors' libraries in understanding the evolution of ideas and values within a society and historical period. How have these documents reflected the way in which societies have adapted and changed as a result of historical events? In the first case, personal diaries kept during war time open a window onto how the act of reading helped soldiers cope with the horror of war through the creation of an alternative form of "literary camaraderie". In the second case, examining correspondence dealing with the experience of reading provides a unique view of how new ideas and topics enter and clash with common sentiments, ethics and ideals. It can also show how over time these new visions were rejected or integrated, from the eyes of the very actors at the centre of public discourse. Lastly, authors' libraries provide evidence of the influence of reading in shaping ideas in the form of traces, notes, comments (i.e. alterations) left by readers in their books.

3.1 Changes in Diary Keeping Practice

Personal diaries are an important source for understanding lived experience and cultural engagement across history. They can also be rich potential sources of evidence for reading. Patterns in diary keeping have not, however, always been constant through time. Before the late nineteenth century, keeping a diary was very much a middle-class or bourgeois practice. Diaries required literacy, the availability of at least some leisure time, and the possession of the money required to purchase them [17]. These limitations mean that much of the evidence about reading preserved in historical diaries is heavily biased towards social elites. By the early twentieth century, however, diary manufacturers were starting to target consumers of more modest means. During the First World War, newspaper commentators and stationery industry advertising strongly encouraged soldiers and their families to keep personal diaries, a phenomenon that expanded the social reach of the practice of diary keeping substantially [18,19]. This expansion of diary keeping into the working classes means that we have evidence about the daily lives and habits - including reading habits - of many thousands of ordinary people that would otherwise have been unrecorded. Diaries - and especially diaries kept by non-elite diarists - therefore form an important aspect of cultural heritage, a fact that is now starting to be recognised through the creation of specialist projects and repositories such as the Great Diary Project at London's Bishopsgate Library [20].

Pre-war patterns in diary-keeping continued to operate to some extent during the First World War. As Jessica Meyer points out, many surviving British First World War diaries were kept by officers who were posted to relatively quiet sectors. It was obviously difficult to keep a diary in a busy or chaotic part of the front; any diaries kept in such areas were also liable to loss or abandonment due to action or the death of the diarist [21]. However, a number of men in the

ranks did keep diaries - often for the very first time in their lives - and these can give us a special insight into their experiences and, in some cases, what they were reading. An example of such a working-class diarist is Private William Hodgson of the King's Own Royal Lancaster Regiment. Hodgson was a territorial soldier during peacetime and he sporadically kept a diary while training in Britain in 1916 and after he was posted to the front in early 1917. On 26 November 1916, while at Aisne Barracks in Hampshire, he recorded in his diary: '9-30 Church Parade Watched the match between King's Own [Royal Lancaster Regiment] and Army Service Corps King's Own won 6-1. Took YMCA library book back: E F Benson's "Princess Sophia" and drew Jack London's "Call of the Wild"'. While in hospital in December 1916, he records in his diary reading London's 'White Fang', alongside novels by E. Phillips Oppenheim, Ethel M. Dell, Richard Marsh, and Baroness Orczy, though an attempt to 'find interest in reading' Charles Dickens's 'Great Expectations' failed [22]. These would have been regarded as thoroughly unremarkable reading choices in 1916. However, they (and records like them) are extraordinarily valuable for historians of reading in the 21st century. They record the reading of mass-market fiction that was extremely popular at the time, but often derided or overlooked by the kinds of elite contemporary readers, critics, and cultural commentators whose opinions subsequently came to define our understanding of early twentieth-century literary culture. Looking to non-elite records, like the diary of William Hodgson, can give us an insight into popular reading cultures, but it can also suggest how those cultures helped sustain morale and entertain readers on both the home and fighting fronts during a period of worldwide crisis.

3.2 Changes in Correspondence: the correspondence of Ugo Foscolo, 1794-1824

Collections of letters held in archives and libraries form a rich part of the cultural heritage of Europe. Those produced by or addressed to writers and artists supply a critical source of reading experiences. By showing how books were received, interpreted and shared, these collections of letters provide crucial insights into the formation of European identities and mentalities. The correspondence of Italian poet Ugo Foscolo (1778-1827) provides a useful case study of the types of change encountered in this type of source of evidence of reading.

Vanhoutte and den Branden define the following elements in the formal description of a letter: the sender; the message; the recipient; references to the extra-linguistic reality (e.g. names, places, dates, etc.); the language of the letter [23]. Most of these elements contain change, as exemplified by Foscolo's correspondence.

While the sender (Foscolo himself) is the same, his preferred name changed, from Niccolò to Ugo. There are numerous recipients to his letters, whom Foscolo addresses with varying degrees of trust and familiarity. The extra-linguistic reality of the letters changes both through time, as Foscolo grows from adolescence to manhood, and most strikingly through place, as Foscolo moves through a number of Italian cities and then to France, Switzerland and Britain. Finally, the language of the letters changes according to the nationality of the recipient and the place and time of writing. Underlying these changes are the tumultuous political circumstances of Napoleonic Europe and the individual author's personal journey from his rebel patriotism to his service in the Napoleonic army to his reluctant collaboration with Restoration authorities to his final exile. These changes of social status certainly condition Foscolo's access to reading content and his disposition towards it.

Foscolo's case is far from extreme. The nature of the letter as a communicative act from one individual to another at a specific point in time and space involves changes in the circumstances and content of the evidence of reading it contains.

3.3 Changes in Authors' Libraries

Authors' libraries represent an important source of evidence on the reading processes of their owners [24]. Through marginal notes and underlining, readers record their thoughts within the very pages of the reading material.

The survival of such libraries tends to be limited to prominent historical and cultural figures and is therefore not always representative of the reading habits of a whole population. However, as authors write texts that are influenced by what they read and that in turn influence their readers, this type of cultural heritage collection deserves study.

Books as media are the physical interfaces between readers and contents and as such the host of traces of this interaction and target of the immediate effect of reading. In this regard, books from authors' collections provide a variety of insights ranging from dedications, comments and bookmarks to graphical signs expressing the reader's emotions, such as stupor or disagreement. In this frame, the personalisations (alterations) of books at the centre of a system of thoughts and relations of the reader that can become evident from identifying what, where and when these changes occur.

4 Modelling Changes in READ-IT

As previously discussed, Readers change during time and events in terms of their abilities, ideas, memories, aims. Furthermore, as result of reading, Medium change as well, on material level (e.g. annotations) and immaterial level in terms of emotion or value for the reader. The READ-IT model addresses these phenomena by discriminating between:

1. Reader and Person

2. State of Mind and Disposition
3. Medium and Alteration
4. Reading Process and Reading Frame, and State of Mind, Outcome and Premise

4.1 Reader and Person

An action is embedded in a specific context and so is the actor. As an actor of reading, a Reader acts being in a specific state of mind, by using their current abilities, skills and in a contingent personal and social situation. Understanding the state of the reader is a relevant aspect of the context in which the reading experience takes place and thus it is relevant to keep track of the reader's state at the time of reading. Therefore, we consider a Reader a diachronic description of one of the multiple states that a Person assumes during their life. On the other side, a Person is the cumulative result of all the status (Reader), a synchronic representation of a human being. In other words, a Reader is a *description of a Person*, see Fig.7.

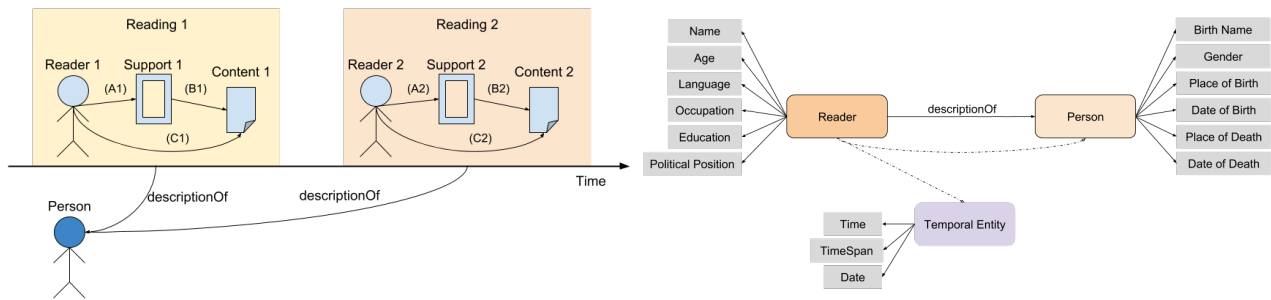


Fig. 7. On the left, a conceptual schema representing the different status of reader of a person. On the left, the schema encoding the Reader as a Temporal Entity describing a Person.

A Reader is a specialisation of the class of Person, characterised by the dynamic (variable) features of a Person, such as their age at the time of reading, while the Person is described by the static (invariant) features of readers, e.g. *Place of Birth*. The Reader is a *description of a Person* at a specific moment in date or period. Thus, a Person is a collection of Reader(s) instances. Furthermore, Reader is specialisation of Temporal Entity, so that it is possible to describe the temporal aspect of the Reader as duration or time in which the described set of dynamic features were a *description of a Person*.

For example, the Person Ugo Foscolo changes as a Reader as he grows in age, changes name and moves to different countries. His occupation, social status and political allegiance change over time and place. His reading *Habits* change as he goes from being a student to being a soldier, a lecturer, a journalist or an exile.

War diaries provide us with examples of a different group of Readers: officers and common soldiers who turned to books as a means of psychological escape from the stresses of wartime. Many soldiers developed reading *Habits*, of which we can find traces in their diaries, indicating a change in attitude toward reading when measured against their reading habits and preferences before the war, changes which in many cases persisted after the war's end.

4.2 Reader's Dispositions

As argued, the current status of a Person, the Reader, has a great impact on the experience of reading. The reader's linguistic abilities, knowledge of topics or historical facts, their political and religious beliefs (Dispositions) are filters *to the interaction with a Contents* or a specific type of Medium, e.g. e-reader, manuscript, printed book.

In the READ-IT model, we specify the reader's Dispositions as a type of State of Mind grounded on the Reader (*has disposition*). In this frame, a Disposition could be related to *ethical* or *aesthetical* aspects of a Reading Resource, its value of within a *social group* or to the *skill* required to understand it, and a Disposition is oriented *in approaching* a specific Reading Process (e.g. a chapter), see Fig. 8.

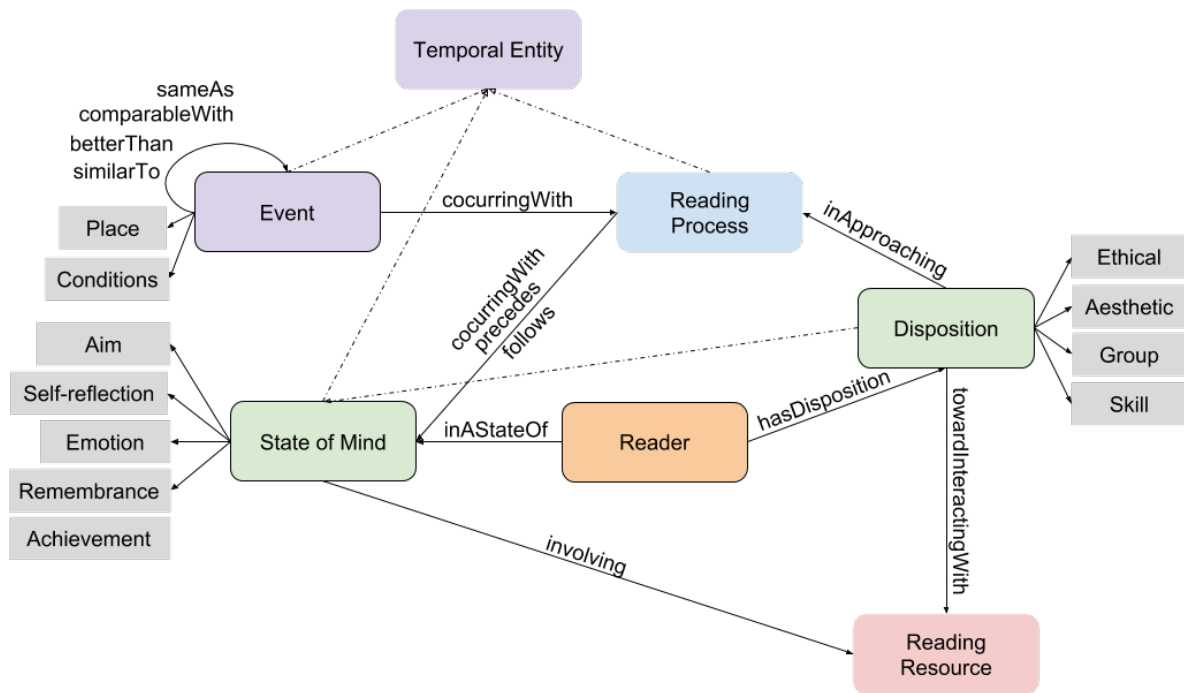


Fig. 8. Schema encoding Disposition, specialisation of State of Mind, and the relations with Reading Resource and Reading Process.

As a specialisation of State of Mind, a Disposition can *involve* Reading Resources (e.g. prejudice against an author or a topic). Furthermore, a Disposition is also a Temporal Entity, and thus characterised by a time and duration and temporal ordering relations.

For example, as Reader Ugo Foscolo undergoes changes of social status and location, his Disposition towards a given Reading Resource e.g. Dante's *Divine Comedy* changes due to his political and personal circumstances, and whether he is reading for pleasure or in order to write an essay about Dante for a literary journal.

In the case of war diaries, it is possible to distinguish between diarists' attitudes toward reading before, during and after the war (Disposition). For instance, before the war, both diary-keeping and (to an extent) leisure reading were practices associated with middle-class people with time to spend in leisure activities, while during the First World War reading and keeping diaries became relatively common activities among soldiers as well as officers.

4.3 Alteration and Medium

With time and in relation with the reader's personal circumstances or social relationships, a Medium can assume a special value for the Reader that can also result in developing new forms of Disposition. As a valuable object (for the reader), a Medium can traverse epochs and events, passing from hand to hand through the generations and working as probes in readers' life. As result of time and usage, a Medium can be adapted or enhanced with notes and dedications, or damaged by time and events.

The model of reading can capture a scenario in which an Alteration can be *causing a Reading Experience* for the Reader as the process *involve* an *altered Medium*. On the other hand, e.g. in case of taking notes, a Reading Process can be *causing an Alteration* (as part of the process), inscribing a trace of the reading in the physical or item Medium. In this regard, an Alteration can be *related to* a Content: an Alteration can be specifically aimed to alter or fix a specific interpretation or value of a concept or situation of the Content, see **Fig. 9** (left).

A Reading Experience can *involve* an Alterations of Medium as the Alteration mediates the interaction between Content and Reader, see **Fig. 9** (right).

For example, the libraries belonging to writers are often preserved as part of cultural heritage collections. These books often contain Alterations that can provide an indication of the changing Dispositions of the Reader, such as influences on their subsequent careers as writers. An example is the study of Herman Melville's marginal annotations (a form of Alteration) in his book collection, which has been used to show how his Reading Experience shaped his writing style [25]. A similar study could be conducted on other book collections preserved in cultural heritage repositories, such as for example, the books belonging to poet Thomas Moore held at the Royal Irish Academy in Dublin.

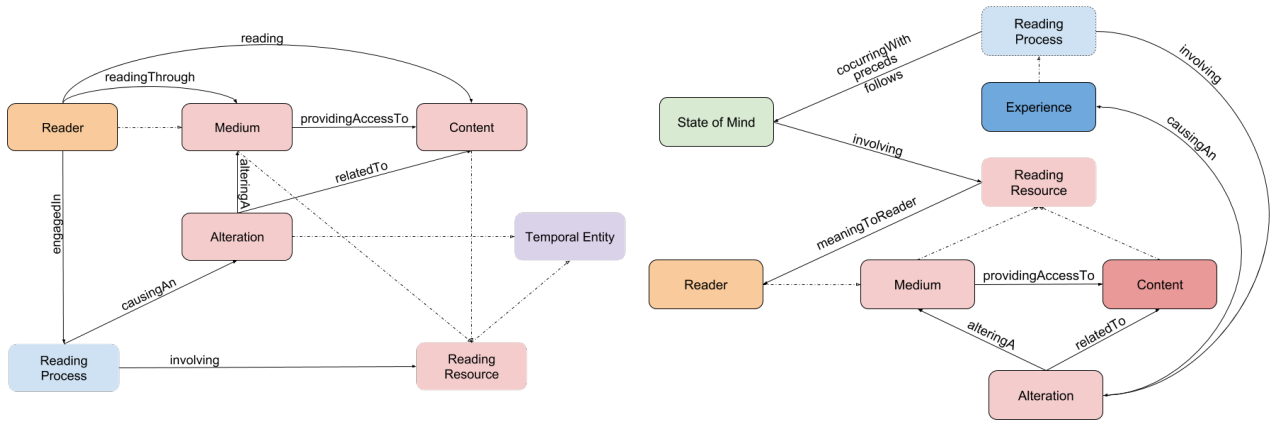


Fig. 9. On the left, Reading Resource and Alterations are Temporal Entities, an Alteration is *altering a Medium* and *related to a Content* and a Reading Process can be *causing an* Alteration. On the right, an Alteration can be causing a Reading Experience.

4.4 Premises and Outcomes

As argued, a Reading Process is situated in the reader's life and, therefore, extends beyond the moment of direct interaction with medium and content, see **Fig. 10** (left). The contingencies of activities and expectations (Premise) provide a context that will be relevant for the results and closure of a reading (Outcome), see **Fig. 10** (right). Premises and Outcomes are the mental Frame in which reading takes place as a result of the contingent personal and social situations relating to Reader's life, public discourse and the personal value of the Content or the personal and social relational system around the specific Medium. In this setting, the Frame of reading provides information about how purpose, expectations, value and relevance of the topics of reading change through time and events.

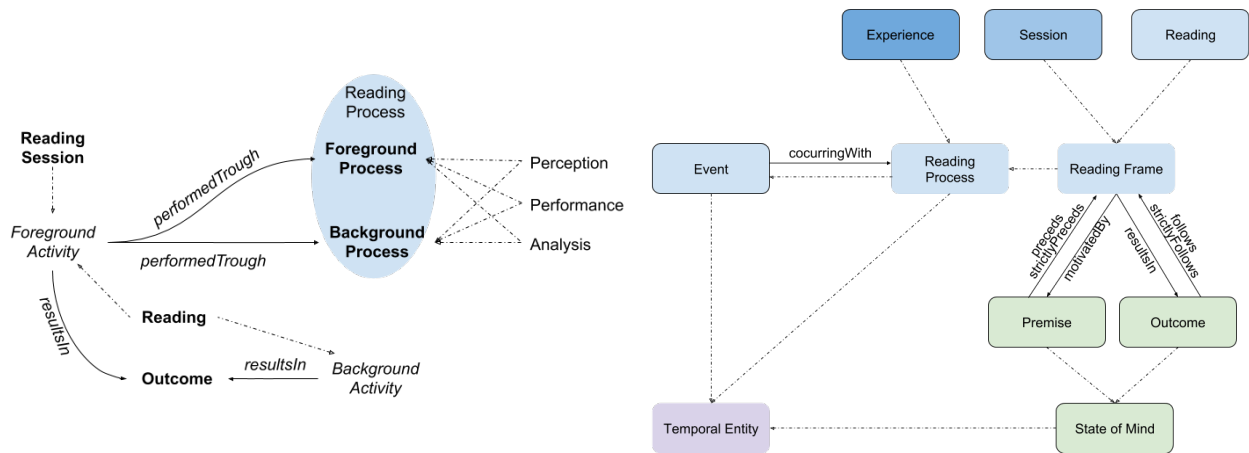


Fig. 10. On the left, a Reading Session is a Foreground Activity, performed through Foreground and Background processes (i.e. Reading Process), while Reading, as a whole, extends beyond a Session as a Background Activity. Both Foreground and Background Activities generate Outcomes. The inclusion of states of mind outside reading sessions specifically relates to the extension of reading beyond sessions, as background activity. On the right, the states of mind related (premises and outcomes of reading) to the background activities are encoded with the concept of Reading Frame.

In modelling reading, we consider Premises and Outcomes as the characterisation of the Reading Frame in which a Reading Process take place. Premise and Outcome are specialisation of State of Mind *causing a* and *being a result of* the Reading Process. Premise and Outcome are Temporal Entities as well, thus it is possible to express temporal relations between short-term and long-term Outcomes of reading, and the evolution of Premises between Sessions and Readings. Furthermore, the Frame of a Reading Process can be specified and then studied at the level of a whole Reading (i.e. from the begin to the end of a content) or at level of Session and through the temporal relations connecting reading experiences.

For example, the Outcome of Reader Ugo Foscolo's reading of Dante changes depending on the Premise of his reading, such as reading for pleasure in Italy or in order to write a review of Dante for a literary journal in Britain.

Considering author's libraries, the graphic signs, such as underlining and marginal notes, left by authors can provide information about an author's reading goals, e.g. why they were studying a text (Premise, e.g. *Aim and Activities*), what they were looking for and what was their evaluation of a given passage of a text (Outcome, e.g. *Self-reflection*).

5 Discussion

From a technical level, the extension of the READ-IT model enables the annotation of a new range of aspects related to the dynamic of reading from the perspective of a single reader. The person-centred perspective we adopted is the result of the examination of sources reporting direct experience of reading. The value of these sources is beyond the individual but can be unlocked only by the systematic annotation of a vast number of sources, which is the purpose of the model of reading and of the technological work-strand of READ-IT.

From a theoretical perspective, the phenomenological approach to the phenomenon of reading as human experience does have limitations on the ability to address functional and societal aspects of reading. Indeed, reading has a fundamental role in shaping society, as a pervasive technology (text) and set of skills required to use this technology (writing and reading). The possession of these skills is nowadays considered almost an assumption of being part of European society and is placed at the centre of education systems. However, this is a very recent social innovation, and yet not universal (either in or outside Europe). In this frame, the ability to read, the level of skill, the competencies with technical or theological text, the access to books and to the places where these abilities were cultivated and taught are central topics for understanding the different meanings of reading during most of human history. The person-centred view of reading is the result of the current ubiquitous presence of reading, which assumes that access to skills and text is not an issue anymore for the vast majority of the population. In this new context of democratised reading, the focus is on the aesthetics and ethics of contents and on the role of reading in the formation of personality and ideas, as we assume that reading has indeed a role in the life of each and every person.

The question of the value and effects of applying this contemporary perspective of reading to historical sources is not trivial and deserves further investigation. On the other hand, from a pragmatic perspective, the historical sources on reading experiences are limited to the elite of society, the few people with both the skill and the access to contents. Thus, limits of the relevance of this approach in understanding society evolution in history is not specifically related to the person-centred approach, but on the availability of sources. Furthermore, the content and factors of reading experiences in historical sources are not indeed different qualitatively from contemporary sources.

6 Conclusions

In this contribution we presented and discussed the technical solutions developed within the frame of the READ-IT project aimed at enabling the study of changes to readers and to the medium of reading in historical sources. We grounded the technical solutions on three real case studies addressing the study of three different sources: diaries, correspondence and authors' libraries. By considering the features related to change in these three types of sources, we introduced four extensions to the READ-IT data model aimed to enable the representation of changes of the Reader and of the Medium:

1. The reader is considered as a description of a person, in a specific time and situation, which enables the study of how the age, skills, religion, political positions, and all variable aspects of a person life can contribute to the reading experience
2. The reader's dispositions as a specific state of mind grounded in the abilities, skills, social groups, age and all aspects of the reader which influence their approach to a content or a type of medium
3. Alteration of media as physical modification of the object granting access to the content, which provides evidence of the use of a reading resource
4. The frame of a reading characterised by specific premises and outcomes of the activity, as a particular state of mind specifically causing and caused by reading

The development of the model of reading we present is tightly related to the development of the READ-IT case studies and requirements emerging from research activities. Furthermore, the model of reading in READ-IT is a first attempt to address the construction of a general theory of reading, thus it is far from reaching a consensus in the different academic communities interested in the study of reading. In this context, we recognise that the work presented is at an intermediate (or early) stage of a long process of iterative improvement and slow convergence on a set of common concepts. Nevertheless, we do believe that the effort of extending the scope of conceptual models to the core of the research topics is a necessary step to address the interdisciplinary macroscopic scale questions which READ-IT targets. Indeed, a common and yet imprecise theory can enable the collaborative construction of a common resource on reading envisaged by UK-RED, beyond the current limits set by the different theoretical framework of disciplines, language and perspectives.

In relation to the value of the sources presented in defining a European cultural heritage, the work presented contributes by providing the means to amplify the effort of individual research groups working on identifying and documenting the historical and cultural phenomena shaping European identity from the analysis of sources. Indeed, the concepts and relations of the model of reading will support the convergence of individual contributions in a common discourse about reading in Europe, and therefore support and promote a holistic European perspective on cultural heritage.

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