

Mind the gap! 10 gaps for Digital Literature?

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Introduction

What exactly do we mean by digital literature? This field has existed for over six decades, descending from clearly identified lineages (combinatorial writing and constrained writing, fragmentary writing, sound and visual writing...). The terminology varies, and *digital*, *electronic*, and *computer-based* literature are all commonly used. Yet most critics in the field are in agreement on the distinction between the two principal forms of literature relying on digital media: **digitized literature** and true **digital literature** (even if the boundary between the two is sometimes rather blurred, perhaps increasingly so).

Digitized literature most often consists in adapting existing, initially printed works and in adding functionalities (annotations, search or sharing options), or multimedia content (videos, or iconographic elements), which enhance the reader's appreciation and understanding. The nature of the text itself remains basically unchanged, however. It can or could still be printed without its signification being altered.

In the second of these two literary forms (*digital literature*), created and designed by and for digital media, the nature of a text would undergo profound changes were it to be printed. "Digital-born"¹ literary creation is currently flourishing in its various forms – hypertext fiction, animated poetry, works including automatic text generation or collaborative online creation. Authors invent and produce literary works specifically for digital media (computers, tablets and smartphones), and strive to exploit their characteristics, namely the multimedia or multimodal dimension, text animation, hypertext technology, interactivity, but also geolocalization or even virtual reality.

The objective of this article is not to give a state-of-the-art review of several decades of digital literature, but rather to identify some of the challenges which it is currently facing, as well as the – creative – tensions implied by these challenges. This paper is based on a keynote speech for the international ELO (*Electronic Literature Organization*) conference organized in Montreal in August 2018², of which the theme was "*Mind the gap!*". What are the bridges which digital literature has yet to cross? Which steps have yet to be taken? We are going to focus on these 10 steps or *gaps*, without however making any claim to exhaustivity. We shall rather raise some questions and reveal some of the tensions entering into play in the field of digital literature, while at the same time considering the associated reading experience and the teaching and research aspects.

¹ "Digital-born" (Hayles, 2008).

² <http://www.elo2018.org/>.

1. The Field of Digital Literature

1.1. Gap No.1

Creation: From Building Interfaces to Using Existing Platforms?

Leonardo Flores³ proposes a typology of digital literature featuring three generations of authors and works. He bases his findings concerning the first two generations on the work of K. Hayles (Hayles, 2008). The first generation, from the 1950s until 1995, corresponds to “pre-web experimentation with electronic and digital media”. The second generation, from 1995 to the present day, engenders “innovative works created with custom interfaces and forms”. Leonardo Flores then distinguishes a third generation, emerging in 2005, which uses “established interfaces with massive user bases”.

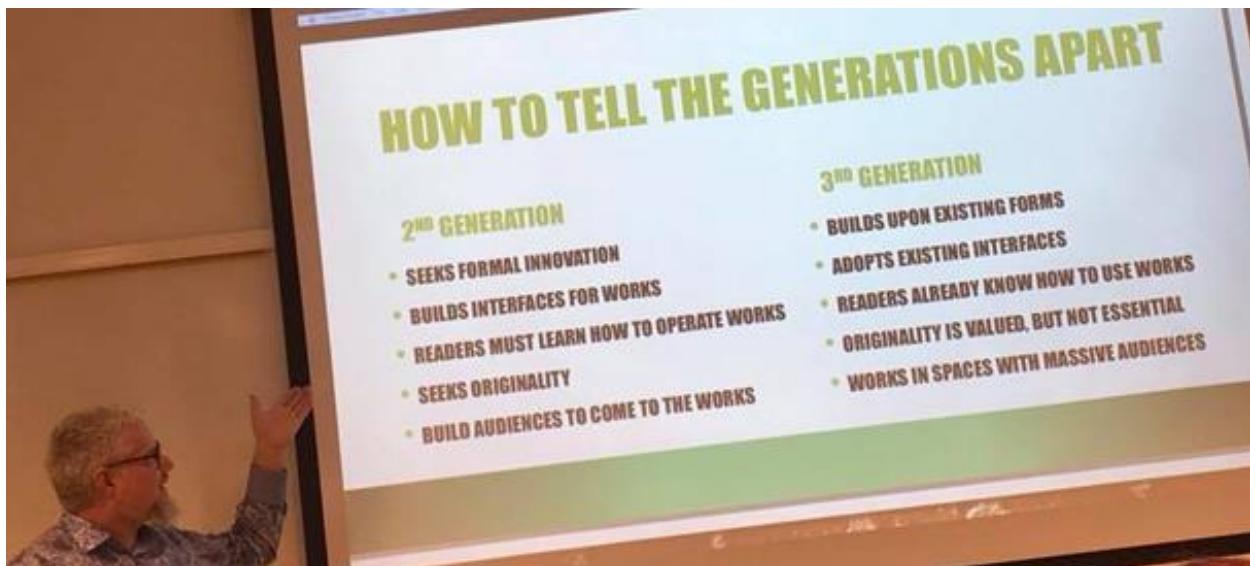


Figure 1. Presentation made by Leonardo Flores at the University of Bergen in 2018.

According to Leonardo Flores, even if the second and third generations currently co-exist, a shift can be observed among authors of digital literature towards the third generation. One of the difficulties facing these authors has sometimes lain in the informatics skills required to create works of digital literature. We could refer to this obstacle as the “technical gap”. It could be significantly reduced, or even closed in the transition from the second to the third generation. Social media platforms notably constitute a precious ally in this respect for authors who may lack programming skills. However the skills issue set aside, their principal motivation may often be that of playing with platforms carrying strong industrial and ideological bearings (and diverting these from their original uses), thus sensitizing a wide audience to their sociopolitical implications.

³ <http://leonardoflores.net/blog/lecture-third-generation-electronic-literature/>.



Figure 2. *Aleph Null 3.0*, by Jim Andrews: an example of a second generation creation.



Figure 3. Third generation: the *netprovs* (improvisations on the Internet run on social networks, especially Twitter) by Rob Wittig and Mark Marino.

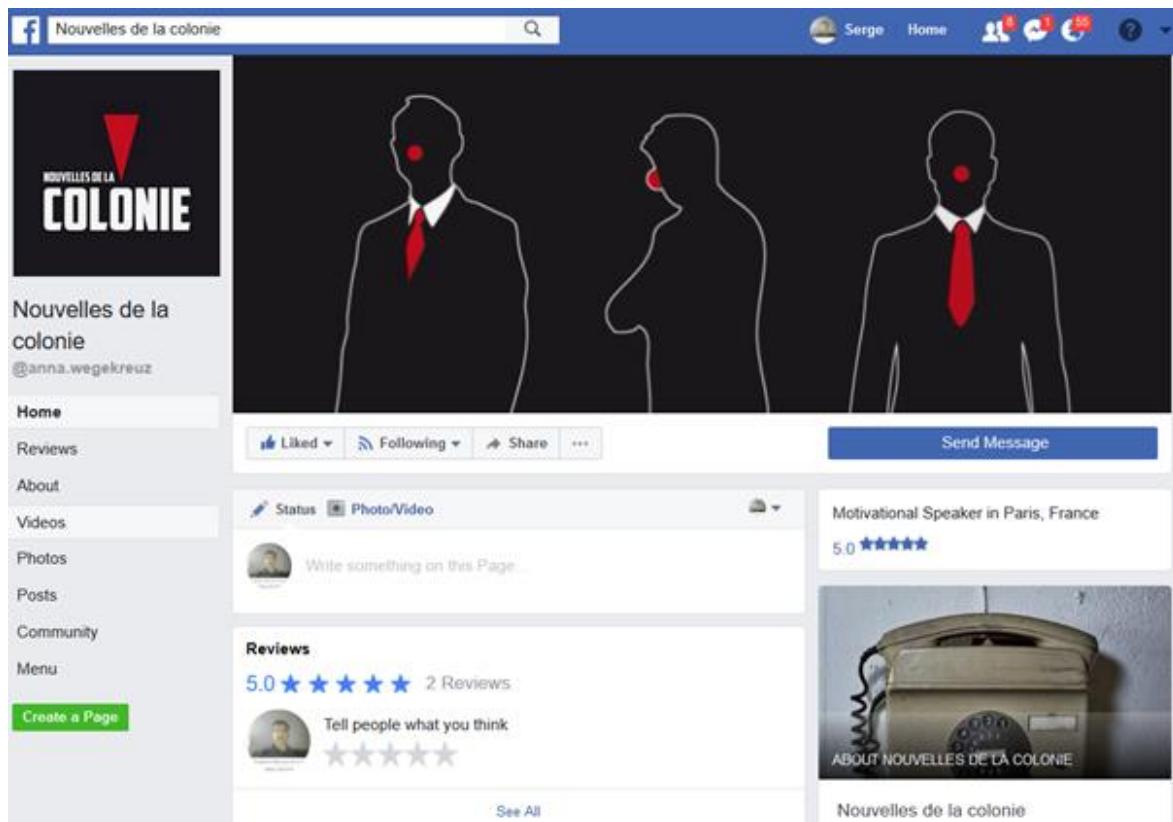


Figure 4. Third generation : *Nouvelles de la colonie*, a collaborative creation on Facebook (<https://www.facebook.com/anna.wegekreuz/>, 2016 onwards).

Tension : Complicity vs. Resistance vis-à-vis Social Media Platforms

But an important question, put forward by David Ciccioricco⁴ should then be considered:

"Must electronic lit operate in a mode of complicity, connecting to its audience through the same means and media to which they are already connected? [...] Or, does electronic lit operate as an art of resistance [...]?"

When authors use a social media platform (such as *Facebook*) or a microblogging platform (such as *Twitter*) to create a work of digital literature, they propose a critical approach by deviating the platform from its primary functions. But by doing so, don't they also run the risk of becoming *accomplices* to the commercial and industrial purposes driving these platforms? The question of the perennity of creations based on proprietary platforms, and thus of their dependence on them, also arises.

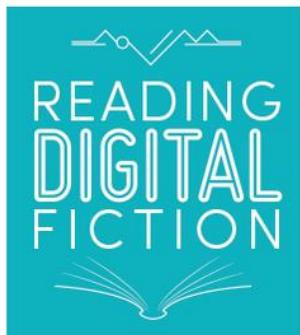
⁴ Publication to come at Bloomsbury Press.

1.2. Gap No.2

Audience: From a Private to a Mainstream Audience?

The emergence of a new generation of tools and works leads us to the often debated question of the audience for digital literature. Regarding third generation creations, Leonardo Flores evokes “works in spaces with massive audiences”.

For several years now, numerous strategies have been set up in the aim of reaching a wider audience. An initiative launched by the University of Bangor in Great Britain, *Opening Up Digital Fiction Writing Competition* (<https://readingdigitalfiction.com/>), was created to reward creations likely to reach a wide audience (“We aim to introduce more readers to digital fiction”, "to discover [...] digital fiction that appeals to mainstream audiences" ⁵).



We aim to introduce more readers to digital fiction and investigate digital fiction reading using cognitive and empirical approaches (funded by the AHRC).

Figure 5. Screenshot of the “Reading Digital Fiction” website.

This aim is also clearly present in all the events organised around digital literature for children, “children elit” or “Kid elit”. Children elit has been featured at several ELO conferences and festivals. An exhibition was devoted to children’s elit at Bergen’s municipal library during the ELO conference organised in Bergen in 2015, for instance. One day of the conference was even held in the library, tying in with the exhibition.

⁵ <http://openingup.wonderboxpublishing.com/>: “Wonderbox Publishing, in conjunction with Bangor University (Wales), is sponsoring the second annual competition to discover the best “popular” digital fiction: digital fiction that appeals to mainstream audiences.”

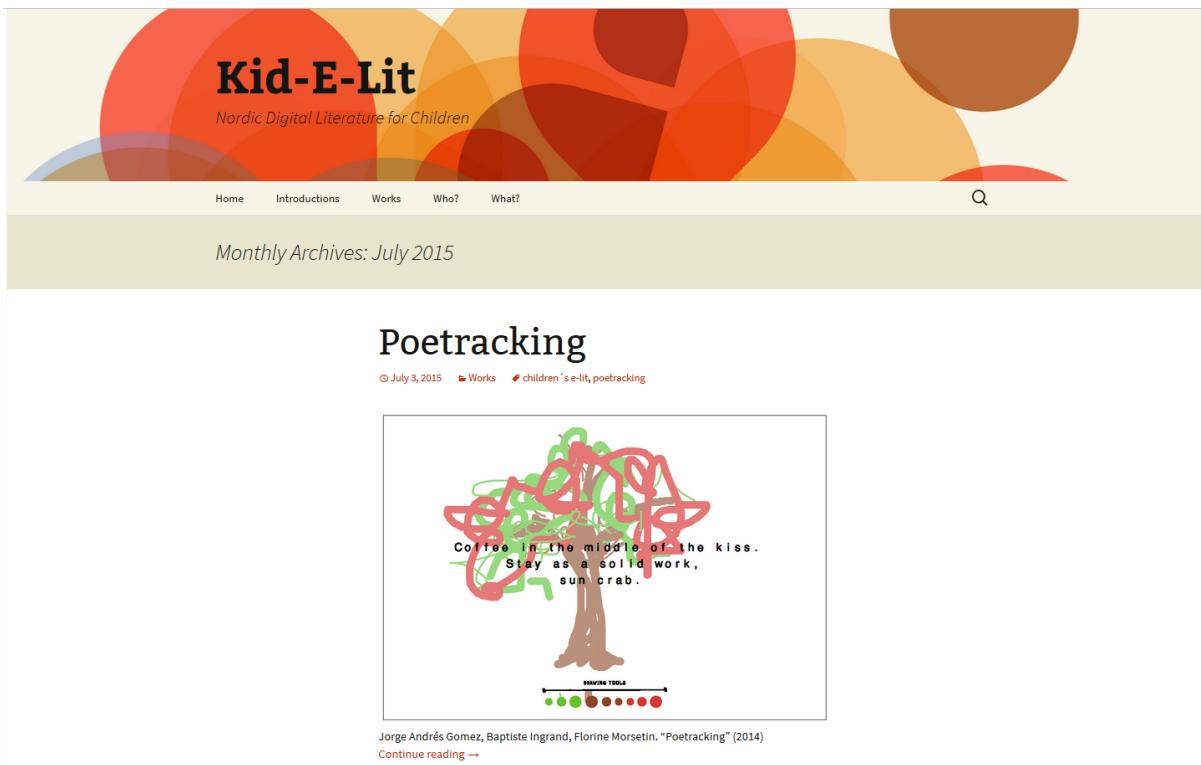


Figure 6. The Kid Elit exhibition for ELO 2015 in Bergen⁶.

Tension: Wide Audiences vs. Experimentation

We may however ask ourselves the following question: should we primarily target mass audiences? Wouldn't this stand in contradiction to the fact that digital literature is first and foremost an experimental literary practice? Scott Rettberg, in an online exchange with Joe Tabbi, evokes "a fundamentally experimental practice, in the scientific sense of experimentation"⁷. What would be the cost of making such a leap regarding target audiences, and would this even be possible?

1.3. Gap No.3

Translation: From Global Digital Cultural Homogeneity to Cultural Specificities?

We have already seen that the emergence of a new generation of platforms and industrial and commercial tools (Gap No. 1) may enable authors to gain a wider readership (Gap No. 2). This transition could lead to global digital cultural homogeneity based on digital technology. It is a question raised by Erika Fülöp:

"Leonardo Flores highlights that elit depends more on (global) technological developments and international influences than on national or regional traditions. Digital technologies represent such a radical change of paradigm, he argues, that we should consider electronic literature as an international or even postnational phenomenon" (Fülöp, 2018).

⁶ <http://www.kidelit.dk/?m=201507>.

⁷ <https://www.facebook.com/jill.rettberg/videos/522434064169/>.

In response to this vision of digital literature as an international and postnational phenomenon, Erika Fülop expresses a desire to “counter the stereotype of a homogenous global culture in the Digital Age”, insisting on the fact that digital literature preserves the traces of pre-digital cultures.

Tension over the Role played by Translation: *Domestication vs Foreignization*

This potential shift also raises the question of the translation of the creations of digital literature. Should the role of the translator (into English, for example) be to dilute cultural references so that an English-speaking audience may *identify* with the work, or on the contrary to reproduce any traces of cultural specificity, thus emphasizing the cultural diversity of the productions of digital literature more than their international dimension?

In the field of Translation Studies, Schleiermacher⁸ distinguishes two approaches to translation: trying to bring the reader closer to the original text (and the culture from which it emerges), by preserving some of its foreignness, its cultural otherness, or alternatively bringing the text closer to the reader by proposing a translation which will immediately seem familiar to him/her because the translation has been adapted to the target culture. This opposition, as reductive as it may seem, clearly reveals the question of the cultural dimension of translation. Lawrence Venuti (Venuti 2008) takes Schleiermacher's distinction further, referring to the tension which exists between "foreignization" and "domestication". How is this tension expressed in digital literature, in a digital space where, according to some, we always feel "at home"? What signification is taken on by linguistic frontiers in this space, should it no longer be one of cultural differences? Moreover how is such cultural diversity expressed? Is it uniquely through the linguistic dimension of digital literature⁹? We might put forward the hypothesis that the fact that the creations of digital literature are not merely based on words, but also on gestures and animations, reinforces the impact of cultural specificities and the importance of taking these into consideration (Di Rosario & Barras, 2012).

1.4. Gap No.4

The Literary Field: From Literariness to Literary Experience?

Creating accessible works and reaching a wider audience could reinforce the transition towards institutionalization and a position in the literary field, by highlighting the literariness of these works. However, we should perhaps wonder, like Roberto Simanowski, whether “a new quality of literariness” is emerging: “*Is there a new quality of literariness in digital literature?*” (Simanowski et alii, 2010).

Yet what exactly is this quality that makes us categorize certain works as being “literary”? Jörgen Schäfer, reflecting on the literariness of the works produced by digital literature in comparison with the literariness that we had been used to before the emergence of this field, insists on “*the production of an alternative reality*” (Schäfer, 2010). Zuern emphasizes the figurative use of language, “*the figurative as opposed to the literal deployment of language*” (Zuern, 2010), and as for Strehovec, the concept of “defamiliarization” (Strehovec, 2010).

⁸ “On the Different Methods of Translating” (1813).

⁹ María Mencía, Søren Bro Pold et Manuel Portela distinguish between four levels of translation (Mencía, Pold & Portela, 2018) :

“*Translinguistic (translation between languages); transcoding (translation between machine-readable codes; translation between machine-readable codes and human-readable texts); transmedial (translation between medial modalities); transcreational (translation as a composition practice; translation as a shared creative practice)*” (presentation at the ELO conference 2017 in Porto).

"The formalists, following the ideas of Viktor Chklovski in "Art as Technique" (1917), claimed "defamiliarization" or "strangeness" (ostranie) as criteria for literariness: literature, or art in general, renews the reader's linguistic sensitivity through processes which disturb their habitual and automatic forms of perception" (Compagnon, 1998).

However, if literariness poses the questions of the figurative use of language and of defamiliarization, we could wonder, like Simanowski, what the equivalent strategies concerning these concepts might be for works of digital literature.

"Strehovec is certainly right in maintaining that the concept of defamiliarization needs to be applied beyond the realm of linguistics to the entire cyber "language", including visual and acoustic material as well as genuine features of digital media such as intermediality, interactivity, animation and hyperlink. A more general definition therefore characterizes the literary as the arranging of the material or the use of features in an uncommon fashion to undermine any automatic perception for the purpose of aesthetic perception" (Simanowski, 2010).

Furthermore such defamiliarization should not only concern the linguistic dimension, but also the visual and acoustic effects of digital works. Another difficulty then emerges: how can one identify defamiliarization within a system of expression which is too recent and too evolutive for norms concerning what is *familiar* or *common* to have been established?

This raises a further question: is the literariness of a work produced in the digital literature field similar to that of a printed work, even though the two rely on different means, or can a transformation of this literariness be observed? For Joe Tabbi, literariness is inevitably transformed by works of digital literature:

"Electronic literature, whatever it might become, is not just the latest area of academic specialization. Rather, it seems that we are involved, collectively, in transforming how literary work is performed, presented, and represented in multiple media" (Tabbi, 2002).

Through works of digital literature, what we are able to witness is not so much the incarnation of a pre-existing literariness, but rather a metamorphosis of literariness¹⁰. The path taken is one of historical construction and variation of literariness. Those who criticize such texts for their lack of literary value have perhaps failed to grasp that which determines the specificity and the pertinence of digital literature, namely an interactive literary experience. They continue to oppose literature and informatics, or the Digital, and refer to two different worlds incapable of communicating with one another. However it is precisely this confrontation, this interpenetration between literature and digital technology, with all the resulting tensions, which constructs the literariness of digital literature. Or perhaps we should speak – in a pragmatist manner, cf. Dewey¹¹ – of *literary experience* rather than – in an essentialist manner – *literariness*.

Tension: Legitimacy in the Literary Field vs. a Position on the Boundaries

The ELO defines digital literature as follows:

"What is Electronic Literature? The term refers to works with important literary aspects that take advantage of the capabilities and contexts provided by the stand-alone or networked Computer".

¹⁰ Joseph Tabbi (2018) prefers the term "relocation" of literature, which places the emphasis not on this or that quality of this or that individual work or formal innovation, but a situation of literary arts in an emerging medial environment.

¹¹ For Dewey, there is no artwork that has value in itself regardless of the experiences that are made of it (Dewey, 1934).

But should we continue to speak of literariness? Wouldn't this imply taking the risk of continuing to be judged according to criteria which are not appropriate for digital literature and its specificities, and of exposing authors to a continuing lack of comprehension? Should we attempt to close the institutional gap which separates digital literature from traditional literature? Should we search for legitimacy in the literary field or build (one or more) road(s) on the edges of this field?

2. The Reading Experience

2.1. Gap No.5

Gestures: From Reading Texts to Interpretation through Gestures?

On what is the above-mentioned literary experience based? Works of digital literature often, but not systematically, propose a manner of reading which necessitates the use of gestures, in other words gestualized reading. A digital text, as well as being a text provided for reading, can also provide an opportunity for manipulation. This dimension of the manipulation of the text, but also the whole range of semiotic forms, opens a large field of possibilities for interactive digital creations. To what extent is it true to say that there exists a "gestural gap," a leap to be made towards gestualized reading? And to what extent is it appropriate to speak of a gesturality specific to the Digital?

In the interactive narrative *Loss of Grasp*¹², the gesture fully contributes to the building of meaning. The reader is confronted with gestural manipulations which rely on a gap between his/her expectations while manipulating and the result on screen. The reader experiences the character's loss of grasp in an interactive way. In the third scene, for example, the character can't seem to understand a note left by his wife: "love poem or break up note?" The reader can experience this double meaning through gestures. If he/she moves the mouse cursor to the top, the text will unfold as a love poem; but if the cursor is moved to the bottom, the order of the lines is reversed and the text turns into a break up note.

The example analyzed above raises the question of the role played by gestures and more largely of the engagement of the body in digital literature. Gestural manipulation is certainly inherent to writing and reading devices; however, the Digital provokes a *passage to the limit* by introducing computation into the very principle of manipulation (Bachimont, 2010). Digital literature is possibly the most effective means of revealing this phenomenon. What might happen when the user makes the gesture of typing a letter on the keyboard? Another letter may be displayed instead (cf. the last scene of *Loss of Grasp*)¹³, or the typed letter may leave the input field and fly away, or the gesture may generate a sound, run a query in a search engine, or even turn the computer off (all these examples are to be found in digital literature). From this simple gesture, the realm of possibilities exceeds the anticipation inherent to the gesture.

The Digital makes it possible to defamiliarize the gestural experience inherent in reading and writing, to make it *unfamiliar* and even *strange* again. Defamiliarization is of course the project of many avant-garde and literary approaches (and more generally artistic approaches). But one could argue that there are particularities to the digital mode of defamiliarization. In literature, defamiliarization concerns the linguistic aspect. In digital literature, as we have seen, it concerns not only the linguistic dimension, but also the

¹² Bouchardon Serge et Volckaert Vincent, *Loss of Grasp*, 2010, <http://lossofgrasp.com>.

¹³ <http://www.lossofgrasp.com/>.

visual and acoustic dimensions, as well as the gestural dimension. It is undoubtedly through the question of gesturality that the experience of defamiliarization can be rendered explicit, insofar as a fairly stable repertoire of gestures has begun to be established thanks to digital devices (PC and tactile devices). With the Digital, interactive gestures and interactive gestural manipulation are defamiliarized thanks to the opacity of computation: the Digital can introduce a gap between the user's expectations based on his/her gestures and the realm of possibilities offered. In interactive digital literature, defamiliarization is based on computation. In this sense, we could speak of a gesturality specific to the Digital, which is particularly well highlighted in digital literature.

The role played by computation, by digital programs and interfaces, as well as their cultural assimilation must be taken into account to analyze gestural manipulations and to grasp their specificities. Hypothesizing that there is a gesturality specific to the Digital entails the necessity to sensitize and train users to the role of gesture in the construction of the meaning of a digital creation. It is indeed important to understand and analyze the semiotics and the rhetoric specific to these gestural manipulations. This dimension could be integrated into the teaching of digital writing.

Tension: Between the Contemplation of the *Revealing* of Meaning and its Physical Accomplishment¹⁴

A tension can consequently be observed between the contemplation of the *revealing* of meaning and the physical action which is required to bring about this revelation. Indeed the creations of digital literature often rely on devices on which the reader acts, composes, and constructs. Is this experience, which is based on gestural activity, compatible with an aesthetic experience - or even an aesthetic *revelation*? The creative tension here lies in the divide between the necessary openness to meaning on the part of the reader which requires him/her to be ready and disposed to interpretation, and the closed environment of the device which requires him/her to be busy, active and engaged. The creation has to entail an aesthetic experience, which cannot only be based on "doing". These observations lead to the hypothesis that digital literature is truly an art form provided it transcends the closed environment of the device while at the same time demonstrating its potential for the revelation of meaning.

2.2. Gap No.6

Narrative: From Telling a Story to Mixing Fiction with the Reader's Reality?

In (Bouchardon 2009) I defended the postulate that narrativity is conditioned by the medium on which it relies. Whereas narrative theorists (Russian formalists like Propp, for example, or structuralists such as Greimas or Bremond) principally defend a universality independent from the medium, digital literature shows us that the medium used conditions narrativity. Here, the term "conditions" means that the device is the condition for the narrative to unfold, but that it also constrains it. This does not however imply a deterministic vision: the digital medium is subjected to tensions and thus allows a multitude of possibilities¹⁵.

¹⁴ I refer to this in (Bouchardon, 2016) as the tension which exists between aesthetic and literary experience. I analyze the fundamental antinomy between the activity (particularly gestures) in the reception of digital literature and the aesthetic experience.

¹⁵ We could object that it is because the digital medium plays a major role in the interactive works that it conditions the narrativity. In fact, interactive literary narratives provide us with a refreshed perspective on previous media, beginning with paper, and highlights the importance of the medium in any narrative process.

Would it be true to say that a new form of story-telling has emerged over the last few years, aided by the constraints inherent to and the possibilities opened up by digital media? The gap between this new way of telling stories and more traditional ways may emanate from the coupling between databases¹⁶ and real time data flows.

Let us take the example of *Lucette, gare de Clichy*¹⁷ (a creation presented by Françoise Chambefort as a performance at the 2018 ELO festival in Montreal). This is a narrative based on a real time data flow.

"Lucette lives directly opposite Clichy-Levallois station. From her window, she can see travellers who pass by. The trains, with their strange and familiar nicknames, are like people who come to visit Lucette. There are moments full of animation and moments of solitude."



Figure 7. *Lucette, Gare de Clichy*, by Françoise Chambefort (2017).

This type of narrative can be described as a pure temporal experience, based on the protagonist's experience of the passing of time, yet it remains nonetheless a *real time experience*. This non-interactive narrative work is indeed connected to real time data from the Paris region rail network (from the L line of the *transilien* network). It raises very interesting questions concerning the hybridization between reality and fiction. To what extent may a fictional narrative depend on a real time data flow? Could this lead to the emergence of a new narrative form?

Françoise Chambefort analyses the relationship between real facts and fiction in the following way:

"We are now capable of identifying the narrative potential of the media and technologies which use data as a trigger for narration. Data constitute a material which is particularly well-suited to narrative purposes [...]. The choice of data as a starting-point for fictional narration fully contributes to the narrative project. Real facts and fiction enter into a functional relationship, steering the observer's attention from the real to the fictional pole and back again in a movement which I believe reinforces the signification of the work. Moreover the notion of real time leads to fusion between the narrative

¹⁶ In 2001, Lev Manovich already evoked "database narratives" (Manovich, 2001).

¹⁷ *Lucette, gare de Clichy* (2017), <http://fchambef.fr/lucette/>.

intrigue and its reception. Aided by this very specific temporality, the contingency of fiction is strengthened by the inclusion of elements of reality, while fiction lends greater emotive potential to reality" (Chambefort, 2018).

The question of real time data flows, or even of virtual reality set aside, the emerging gap regarding the manner of story-telling may result from the intrusion of the reader's real time and space into digital fiction.¹⁸ Thus some narratives, in the form of applications for smartphones, are based on notifications, and take into account the reader's *real* temporal experience. In *Lifeline* (2015), an interactive fiction for smartphones with a strong entertainment dimension, for example, the user interacts with a fictional character and gives him/her advice concerning a mission (in the first episode an astronaut is lost in space, and the second episode is centered on a young female magician). The character relates his/her quest, disconnecting from time to time to accomplish a task or to have a rest. The user meets the character several minutes or hours later when he/she makes contact once more. The user's day is thus punctuated by these exchanges, which last several days if the reader follows the narrative at the normal rhythm.

If we are now to consider the spatial dimension, we are dealing here with digital narratives linked to physical spaces. These range from online narratives featuring cartographic tools¹⁹, to narratives which transcend the limits of the screen and are extended to urban spaces, notably narratives relying on geolocation (*locative narratives*, or *ambient literature*). For example *The Cartographer's Confession*²⁰, an application for smartphones which tells the tale of two refugees just after the Second World War, requires the reader to wander through the streets of London for the narrative to develop. Such hypermediatized fictions raise the question of the relationship between narrativity and spatiality (Bourassa 2010), and particularly that of the relationship to physical space coupled with databases.

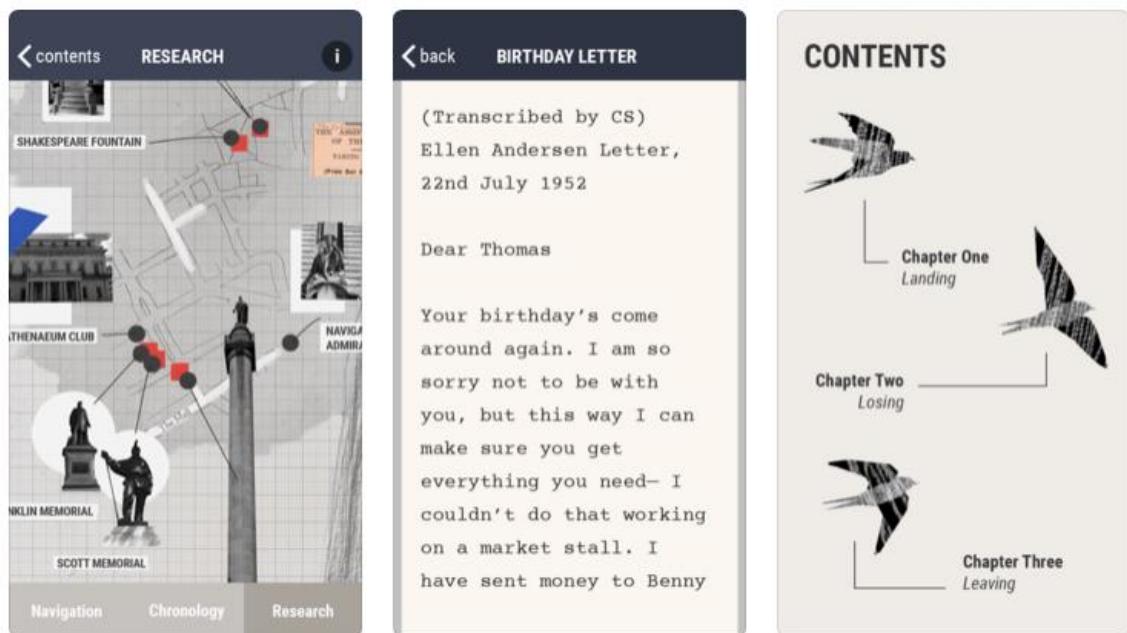


Figure 8. *The Cartographer's Confession*, designed by James Attlee (2017).

¹⁸ There is a long tradition behind the inclusion of real parameters in video games. For instance in 2003 was published in France the CD-ROM *In Memoriam* (*Alternate Reality Game*, before the expression became widely-known): <http://www.dailymars.net/dossier-les-jeux-videos-en-arg-1sur4-in-memoriam/>.

¹⁹ Narratives which include data from Google Maps, for example: Carpenter J.R., *In Absentia*, 2008, http://collection.eliterature.org/2/works/carpenter_inabsentia.html.

²⁰ <https://ambientlit.com/cartographersconfession>.

The “gap” which is bridged here appears to be that of introducing more of the reader’s reality into fictional works. The intrusion of the reader’s own temporal and spatial reality into fiction would seem to differ from the literary and cinematographic metalepses we have grown used to; the “crossing of the threshold” (Genette) is of another nature.

Tension: Narration vs. Role Play

Can we go so far as to say that digital literature contributes to the removal of the border between fiction and reality? This phenomenon could be partially explained by the difference between narration and role play²¹; when someone tells a story (narration) a frontier exists between reality and fiction (without this frontier preventing the listener or reader’s total immersion), but if I perform the protagonist’s actions as *if I were* the protagonist (role play), then perhaps the frontier becomes blurred. In fictional digital narratives involving the reader’s own temporal and spatial references, the narration may sometimes seem to give way to the dramatic interplay, so that the reader *plays* the role of a character.

According to Françoise Lavocat, the power of fiction lies in the reader’s “frustrated desire to help fictional characters and to penetrate their world” (Lavocat 2016). This suggests a form of empathy rather than identification. Far from being instrumental in the removal of the border between reality and fiction, empathy as defined above would rather seem to reinforce this invisible barrier; feelings of empathy are transferred to the narration process, identification experienced through role play.

Should our hypothesis be one of the removal of the border between reality and fiction in works of digital literature involving the reader’s real time and space, or rather one of a new relationship (in French “agencement”²², cf. Deleuze et Parnet, 1977) between reality and fiction, as well as between identification and empathy?

2.3. Gap No.7

The Digital Subject: From Narrative Identity to Poetic Identity?²³

As Paul Ricoeur demonstrated, our personal identity is constituted as we read, and narrative fiction can constitute an intelligibility rating scale for our own existence (Ricoeur, 1985). At the heart of the link between one’s relationship to a text and the relationship with one’s own self-identity lies the idea put forward by Alberto Manguel (2013), writing about the reading of Saint Augustine, that the world is a book that we have to read or, as Clifford Geertz claims, that a text is a paradigm for the interpretation of the texture of human action (1973). However in this entwinement of literature and life, in which the former becomes a mirror or a laboratory for the latter, it would seem that all genres, and all types of texts are not equal. What the founding works of literary modernity, such as *Don Quichotte*, or, later on *Madame Bovary* seem to suggest, is that the narrative genre, including its grotesque and dramatic potential, has constituted the central paradigm for the interpretation of life’s actions and temporal scale, and for our relationship with otherness.

Indeed narrative fiction, particularly the novel, provides a model which can help us to understand ourselves, and to consider our own evolution over time as a fictional adventure. Recognizing the existence of such a fictional self-identity implies the acceptance of a certain representation / vision of life, seeing it as a long linear progression, interspersed with various stages and twists divisible into chapters and incarnated by

²¹ Role play here does not refer uniquely to the theatre.

²² For Deleuze, this new relationship (“agencement” in French) consists in linking two heterogeneous elements which were not originally destined to be associated.

²³ This section is based on (Mayer and Bouchardon, 2018).

characters (the hero/heroine as oneself, with one's allies and opponents as the secondary characters), and which could be read as a single story. Yet the forms of writing and reading engendered by digital literature could well shake up this model.

The first reason for this upheaval is that the literary forms made possible by the web, and the reading processes which it provokes provide alternatives to the linearity of the novel. Reading on the web becomes a short, fragmented, nomadic activity, in which the reader surfs from one hyperlink to another in the order of his/her choice, while digital literary creation experiments with interactive, multimedia texts which go off on tangents, and in which the unity is never predetermined, but must be constructed and negotiated²⁴.

Simultaneously, the very tools which allow us to express our digital identity also seem to favour a gathering of isolated instants and fragments rather than a single trajectory. The ways in which we display our lives on social networks, for instance, escape from the linearity of a *curriculum vitae*, to take on the form of short notes (Facebook "statuses"), emphasizing the multiple facets of one's self-identity or identities, and the most memorable moments of one's existence. Our identity is renewed with each new post by and in the instant we are living, be it through a mosaic of photos, or a haiku anthology, and we become a colourful amalgamation of instantaneous experience.

Are these two phenomena, the transformation of reading and the transformation of self-expression, linked? Do they both partake in a same future, in which life's mutations and textual mutations come together, undermining the temporal concordance of narrative to give way to a collection of brief instances? Are we witnesses to a new manner of interpreting our own identity, provoked or reflected by the ways we read online texts – and in which direction is this causal relationship likely to develop?

One hypothesis, put forward by Ariane Mayer (Mayer and Bouchardon, 2018), would be the qualification of this shift in the reader's self-identification process as a poetic experience, in which a poetic model of oneself coexists with the narrative model hitherto traditionally used to explore one's own reactions. Through this new model, the reader reads about his/her own identity not in a story, but rather in a vision emerging from a plurality of sensorial spaces, featuring fleeting moments and impressions to be then gathered in an anthology. The reader proclaims his/her identity not as a temporal progression, but as a landscape, where the sounds, images and thoughts are engaged in chance interactions, thereby creating a unique atmosphere.

Tension: An Ever-increasing Fondness for Fictional Narratives²⁵ vs. A Shift towards a Poetic Self-identification Process

Would it not be true to say that social media platforms (cf. gap no. 1) reinforce such a transition towards poetic identity? To what extent do works of digital literature play a determining role in illustrating/conceiving this shift?

Do online self-expression processes and digital literature contribute to a poetic self-identification process? Or, inversely – and perhaps for this very reason – does the contemporary reader have a greater need for stories than ever before?

²⁴ It is true that the hypertext, the gathering of written fragments, and combinatory literature long precede the birth of digital media. We only need to think of the cut-up technique, which Tristan Tzara experimented with before it was used by William Burroughs in his *Festin nu*, or of the fascination which surrounded the role played by hazard in the assembling of texts which marked the OuLiPo movement, as well as the works of Marc Saporta with his *Composition n°1*, a novel in which the reader can move the order of the pages around as if it were a deck of cards. The specificity of digital media lies not only in the fact that they generalize practices hitherto only experimented with by avant-garde authors, but also in the fact that they spread them beyond the limits of the literary world, to banal communication situations, particularly to social media platforms.

²⁵ Beyond the question of storytelling, we can observe an ever-increasing number of narratives, whether it be films or series, but also of fanfictions produced by internet-users themselves.

3. Teaching and Research

3.1. Gap No.8

Pedagogy: From Literacy to Digital Literacy?

From a pedagogical point of view, is there a bridge to be crossed from literacy to digital literacy? Should digital literacy be taught in the same way as literacy? What types of knowledge and competencies should be encouraged? And what role could digital literature play in digital literacy?

Various interpretations are associated with the notion of literacy (see Cailleau, Bouchardon & Crozat, 2018). First of all, as Béatrice Fraenkel and Aïssatou Mbodj remind us (Fraenkel and Mbodj, 2010), “the English term *literacy* is a commonly used word, referring to the capacity to read and write”. It comes from the Latin “*litteratus*”, and according to the work of the specialist of the high Middle Ages Herbert Grundmann, the term’s semantic meaning derives from its relationship to its antonym, “*illiteratus*”, which up till the twelfth century was used to designate someone who “could neither read nor write”, subsequently to take on the extra connotation of the non-mastery of Latin. The authors point to the original ambiguity of the term literacy, which first designated a competence based on technical skills, before a cultural element was added.

Furthermore the authors point out that the two great schools of thought concerning literacy reflect the ambiguity around the term. The first movement, known as “autonomous” and based on the work of Jack Goody, considers writing as a “technology of the intellect”, which opens up possibilities for social organization and cognitive processes, independently from the practices and contexts which provoke its use. (Goody, 2007). These possibilities may only be partially exploited depending on the context, and in this case he speaks of “restricted literacy”. The second, or “ideological” movement founded by Bryan Street, claims that the act of writing is always anchored in a given situation, and that it is therefore impossible to attribute *a priori* effects to it.

Tension: Theoretical Learning vs. Practical Learning (coding)

The first approach, in keeping with Jack Goody’s ideas, implies a vision of digital literacy which includes knowledge and comprehension of the specificities of digital writing, seen as a technology of the intellect, and as such indissociably technical and cultural. Such an approach (and it indeed seems to be the most appropriate one) raises the question of the level of comprehension of digital technology: can one’s knowledge remain abstract, or are practical skills essential? This is a much-debated question at present (Souchier, 2017). It is my belief that programming skills can contribute to literacy as we interpret it. Learning to code is not a goal in itself, but a means to experience the active dimension of the digital world, to become aware of our choice options among a range of technical possibilities and to contribute to the design of the writing and reading tools we use every day, even to modify them or create new ones. The aim is not to turn everyone into a computer engineer, but rather an active participant in the digital world.

Learning about digital literacy involves studying the link between technical and cultural knowledge on the one hand, and between theoretical and practical knowledge on the other.

	<i>Theoretical Knowledge</i>	<i>Practical Knowledge</i>
<i>Technical Knowledge</i>	<i>Theoretical Computer Science (algorithms, modelization...)</i>	<i>Programming (development, systems administration...)</i>
<i>Cultural Knowledge</i>	<i>Humanities and Technology (History, Philosophy, Anthropology...)</i>	<i>Using the tools (correct practices, détournement or innovative uses ...)</i>

Figure 9. The techno-logical components of learning about digital literacy, by Stéphane Crozat (2018).²⁶

How can the gap separating us from digital literacy be closed thanks to digital literature? Many creations sensitize us to the fact that a digital text consists in two types of text: a coded text (for example a text on the web is often coded in HTML) and the text displayed on the screen, which is a form of restitution of the first text. Contrary to paper documents, for which there is only one text (the printed text), there are two distinct versions of a digital text. Thanks to the possibilities for mediation provided by computation, several different forms of restitution may be possible for one coded text. It is this dynamic interplay between coded forms and restituted forms which is exploited by certain authors.

Such is the case for Julien d'Abrijeon's online poem, "Proposition for a Temporal Voyage in the Infinity of an Instant."²⁷: "*This poem's raison d'être is, whatever happens, to be the most contemporary poem which is. Then to disappear.*" By activating the digital creation, the reader triggers an animated poem constituted by the present date and time which appear in different fonts on the screen page. At the end of the poem the text freezes for a few seconds before being automatically generated once again, resetting the time. The text of this poem is not only animated, but also a text devoid of all perennity. It is continually recalculated, and no two versions of it will ever be the same, as the date and time of consultation will always differ.

Through this interplay between coded text and displayed text, digital literature sheds light on the structural dissimulation inherent to all computer programs. The reader is unaware of what the program is doing or calculating. Is the hypertext link on which I have just clicked static? (If I click ten times, will I obtain the same fragment of text each time?) Or is it dynamic, leading to a randomly-chosen fragment, or to one of several text options in function of various conditions, such as the texts already read by the reader, for example? Certain authors choose to exploit this built-in opacity which is due to the machine logic lying behind all computer programs.

In *Lexia to Perplexia*²⁸, Talan Memmott explores the relationship between a human consciousness and a computer network. In this explorative work, he plays on the relationship between the text of the computer program (fragments of which the reader is exposed to), and the narrative text.

²⁶ <http://aswemay.fr/co/000054.html>

²⁷ Abrijeon Julien (d'), *Proposition de voyage temporel dans l'infini d'un instant*, 2002, <http://tapin.free.fr/HEURE.htm>

²⁸ Memmott Talan, *Lexia to Perplexia*, 2000, http://collection.eliterature.org/1/works/memmott_lexia_to_perplexia.html

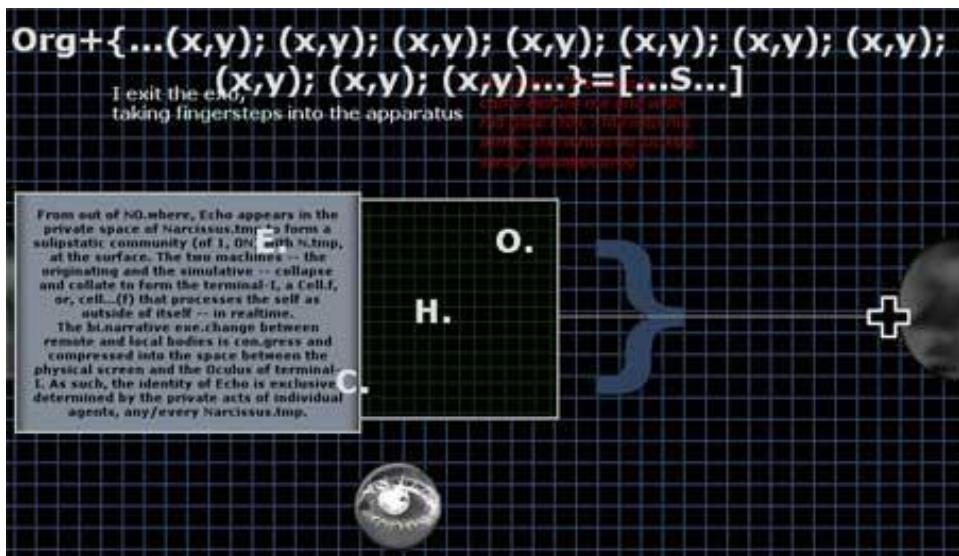


Figure 10. *Lexia to Perplexia*, by Talan Memmott (2000).

On the topic of the encoded text, some authors have succeeded in composing poems which can be read and interpreted by a human reader or executed by a computer (Jean-Pierre Balpe, for example). Such poems play on the limits between written texts which are intended to be read and written texts intended for interpretation through calculation, placing emphasis on the actual calculation process. Alan Sondheim, an author of digital literature, invented the term *codework* to designate such creations, which take on the form of a blend of programming language and *ordinary* language. Moreover the term *codework* has a broad scope of meaning, also designating creations taking the form of lines of code, but which are not for interpretation through calculation. See the following example taken from *Days of JavaMoon* by Duc Thuan:

```
//Feeling.  
if(ashamed++ == losing self-esteem.S_____ wasn't on diet) [re]solution =  
would stop eating lunch next time;  
  
//Result.  
after all = S_____ couldn't resist to eat when see[sniff]ing food  
("ate();", felt defeated & self-disgusted x 1000); }29
```

Furthermore, the shift from the creation of dedicated tools to the use of social media platforms (cf. gap no.1) no doubt incites us to rethink our approach to the digital world. This shift consists in not only considering the Digital as a means, but as a *milieu*, namely that which surrounds us *and* exists between us³⁰, that which acts as a stimulus for our actions and pushes us to make transformations through a permanent co-constitutive relationship. From this perspective, we exist within an environment, whereas our *milieu* is that which allows us to evolve.

Digital literature seems to have a role to play in helping us to understand our digital *milieu* – our new *milieu* for writing and reading - and in helping us to act in it in an informed manner. Digital literature can render *visible* this digital *milieu*: it helps to fight against the myths of transparency and immateriality. Transcending literary culture, digital literature contributes to the building of digital literacy and culture.

²⁹ Thuan Duc. *Days of JavaMoon*. 2000. <http://www.ducthuan.com/JavaMoon/moon.htm>.

³⁰ The notion of « milieu » is borrowed from Gilbert Simondon, who incessantly strove to reconcile culture and technology (Petit, 2013).

3.2. Gap No.9

Preservation: From a Model of Stored Memory to a Model of Reinvented Memory?

The questions of the teaching of digital literature, and of research in the digital literature field, raise a further question, that of the preservation of digital works (the preservation of works of digital literature being also a research field in its own right). It seems vital to attempt to preserve all the works created and to gather them in anthologies. Concerning anthologies, three initiatives can be mentioned here: that of the NT2 laboratory³¹, that of the ELMCIP³² and that of the ELO (with its three volumes in the *Electronic Literature Collection*)³³. The ELO organization also founded the CELL project³⁴ to support the development of a centralized system of taxonomies relating to digital literature across databases, worldwide.

For many years now, there have been numerous archiving and preservation projects for digital literature. The work of Dene Grigar with her *Electronic Literature Lab*³⁵ at Washington State University is a remarkable example.



Dene Grigar
17 hrs

More good news: Rebooting Electronic Literature, the OER that documents 7 works of e-lit, has gone live: <http://scalar.usc.edu/.../rebooting-electronic-literature/index>

REBOOTING ELECTRONIC LITERATURE



Documenting Pre-Web Born Digital Media
by Dene Grigar, Nicholas Schiller, Vanessa Rhodes, Veronica Whitney, Mariah Gwin, & Katie Bowen

Figure 11. Dene Grigar's Electronic Literature Lab at Washington State University.

The archiving and preservation of digital data appear particularly crucial in the field of digital literature. The preservation of works of digital literature leads to a real theoretical and practical problem. A digital literary work is indeed not an object, but in most cases it is not a simple event limited in time, like a performance or a digital installation either. In fact, it partakes of both aspects: it is a transmittable object but also fundamentally a process that can only exist through actualization (Bootz, 2006; Bouchardon & Bachimont, 2013).

³¹ Répertoire des arts et littératures hypermédiatiques, <http://nt2.uqam.ca/fr/search/site>.

³² Anthology of European Electronic Literature, <https://anthology.elmcip.net/>.

³³ Electronic Literature Collection, <http://collection.eliterature.org/>.

³⁴ <http://cellproject.net/>

³⁵ The Electronic Literature Lab : <http://www.dtc-wsuv.org/cmdc/ell-skybox.html>.

What should be preserved in such digital literary works? The mere preservation of the original file seems insufficient to preserve the work, especially so if the work is generative or interactive. In this case, the file is not the work itself as it is not what the reader perceives. Not to mention that online works sometimes rely on readers' contributions: they grow thanks to the internet users' contributions and are in a process of constant evolution.

Jim Andrews's initiative on the web to preserve the digital poem *First Screening* by the Canadian poet bpNichol (1984) combines several strategies. Thus Jim Andrews proposes:

- the original computer program coded with Hypercard;
- the emulator of the original machine which permits us to run the program today (emulation);
- a rewriting of the program in JavaScript to play the work on today's machines without resorting to an emulator (migration);
- a rendering of what was seen on the screen at the time through the use of a video (simulation of the event).

By proposing these complementary approaches, Jim Andrews claims that "the destiny of digital writing usually remains the responsibility of the digital writers themselves." It befalls to the authors themselves to organize strategies for the preservation of their works.

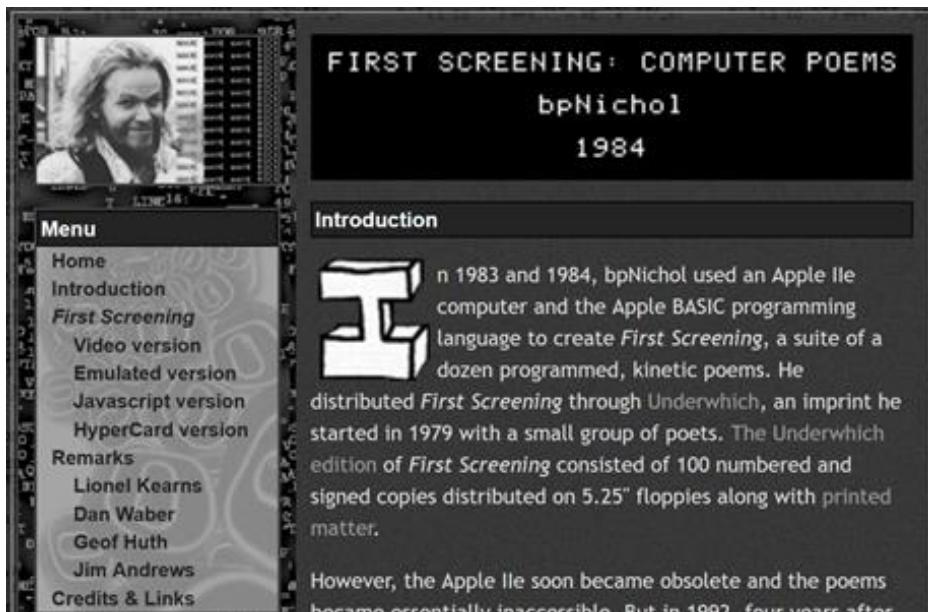


Figure 12. Preservation of bpNichol's poem « First Screening », by Jim Andrews.

It is particularly interesting to observe how many authors go back to their online creations a few years later to propose a renewed version, or *reinvention*. This was the case for Alexandra Saemmer with *Tramway*³⁶. This creation, whose first version dates from 2000, was *reinvented* by its author in 2009 (in the aim of preserving it), taking into account and *poeticizing* the evolutions of formats and systems.

*"In the first version of 'Tramway', the idea of a combinatory reading of fragments, of pre-existing texts was already present, but at the time I saw the instability of the medium as a default or bug; I was far from being capable of 'poeticizing' it."*³⁷

³⁶ <http://www.revuebleuorange.org/oeuvre/tramway>

³⁷ An e-mail sent by Alexandra Saemmer dating from March 2011.



Figure 13. *Tramway* by Alexandra Saemmer (2000-2009-?).

Tramway is based on a painful episode of the author's life, her father's death. When paying her last respects to her father's lifeless body, she found herself incapable of making that final gesture, the closing of her father's eyelids. This unaccomplished gesture further complicates the grieving process for her.

"In Tramway, moving lines of text appear right from the very first clicks. It relates the story of a traumatic experience. On most standard computers, it is now possible to decipher the text. Due to the evolution in computers' calculation speed, the movement of the lines will soon be so quick that the text will shortly become illegible. The instability of the medium is exploited here to show a scene which will undergo the effects of time until its complete decomposition, representing a grieving process which slowly runs its course to finally fade away, so that the reader will soon only be able to find an illegible trace of the scene in Tramway." (Bouchardon and Saemmer, 2012).

Alexandra Saemmer very clearly expresses here the extent to which *Tramway* relies on the lability of digital devices, and to which the same lability is an integral part of the creation. Some authors even believe that their works – particularly online works – are not destined to stand the test of time, but carry the seeds of their own extinction.

Given the intrinsic obsolescence of digital devices and software, some authors consider that it is impossible to fight the “technical trend” which governs their evolution (Leroi-Gourhan, 1964), and that the best bet is to let time take its course, or even to poeticize this obsolescence, thus observing “the aesthetics of ephemerality” (Saemmer).

Tension: Archiving the Original Creation vs. Allowing it to Disappear/ Preserving it through Continual Reinvention

And so another question arises: given the obsolescence of devices and software, should we strive to preserve these works at all costs, or promote the “aesthetics of ephemerality”? Does this philosophy of the ephemeral incite us to make the transition from a model of stored memory to a model of constantly reinvented memory?

Concerning my own creations, I decided to reinvent/recreate the interactive narrative *Loss of Grasp*³⁸ – originally programmed with Flash – as a web-based creation but also as an app for smartphones, both in JavaScript³⁹.

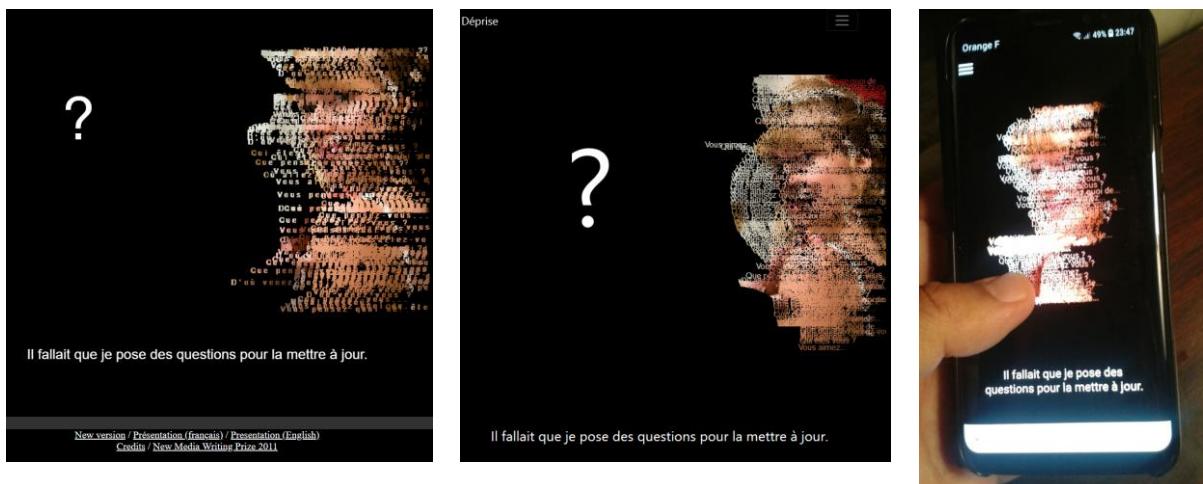


Figure 14. Three different versions of *Loss of Grasp* (2010-2017-2018).

There are three options for managing the perennity or non-perennity of a digital creation, depending on the type of creation and the author's aesthetics: archive the work along with all the documents attesting to its life cycle (including the design process, the sources, and all the different versions); continuously recreate and reinvent it; let it go (the aesthetics of ephemerality). The three options are legitimate (and sometimes combinable), depending on the artistic project.

Regarding preservation, the digital age is undoubtedly and against all expectations the most fragile and complex context in the history of humanity. The added-value of digital technology is thus not where one expects it to be. The digital medium is not a natural preservation medium. However digital technology makes us enter another universe, a universe of reinvented memory. From an anthropological point of view, this model of memory seems more valuable and more authentic than the model of printed media which is a memory of storage (the book that one stores on a bookshelf or the memory that one would store in a compartment of one's brain). Indeed, cognitive sciences teach us that memory does not function according to the model of storage.

From this point of view, digital literature can be regarded as a good laboratory to address digital preservation: it makes it possible to raise the appropriate questions and presents the digital age as a shift from a model of stored memory to a model of reinvented memory (Bouchardon and Bachimont, 2013).

³⁸ <http://lossofgrasp.com>

³⁹ For a reflection on the recreation of a piece, see also (Strickland & Hatcher, 2017).

3.3. Gap No.10

Research: From an Epistemology of Measure to an Epistemology of Data?

Certain researchers in our field, sensitive to the questions raised by *Digital Humanities*, rely on vast corpuses or big databases for their research. For example, Jill Walker Rettberg⁴⁰ analyzed the works quoted in 44 theses on digital literature, and produced a stimulating cartographic representation of these references using Gephi software⁴¹.

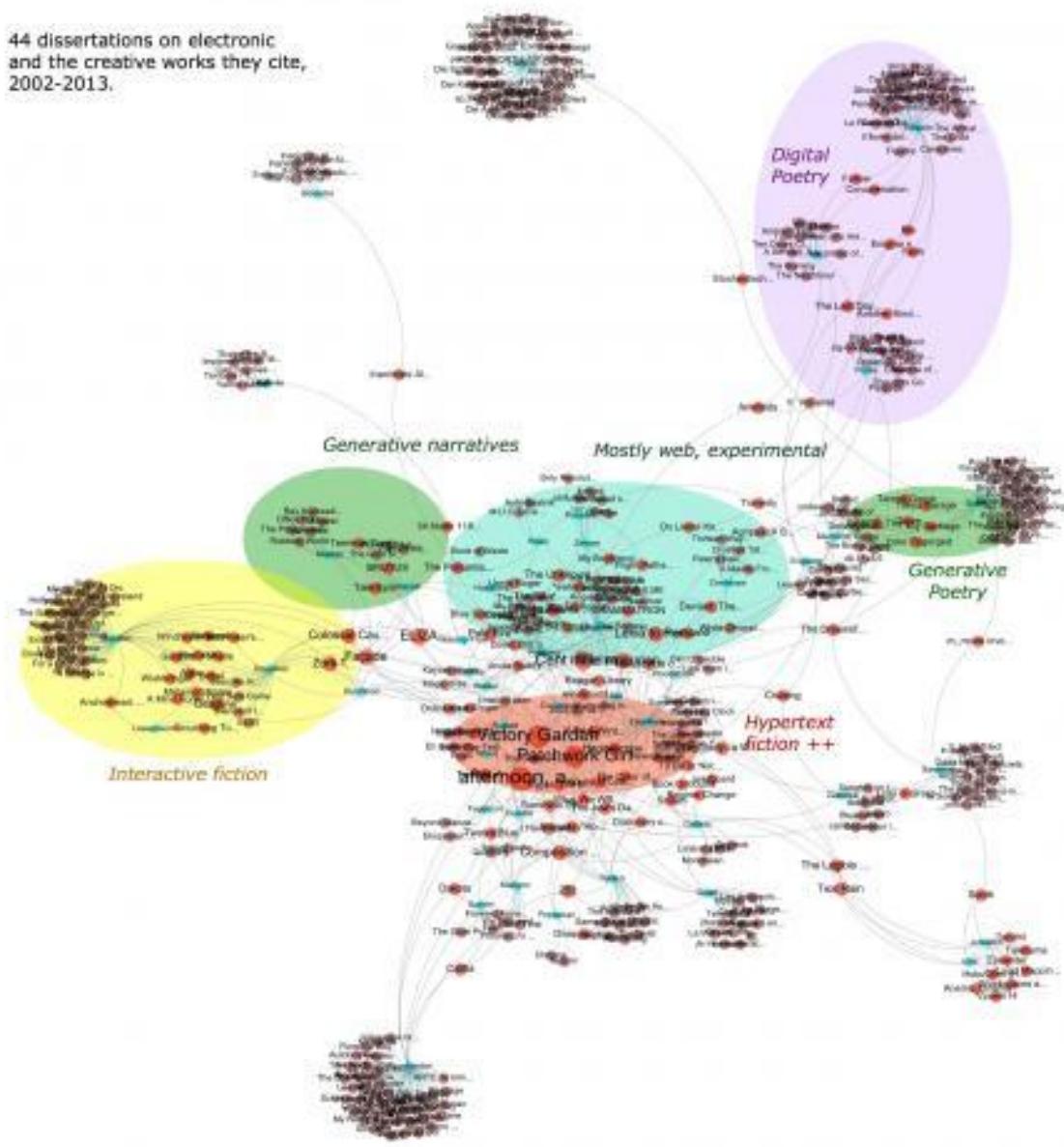
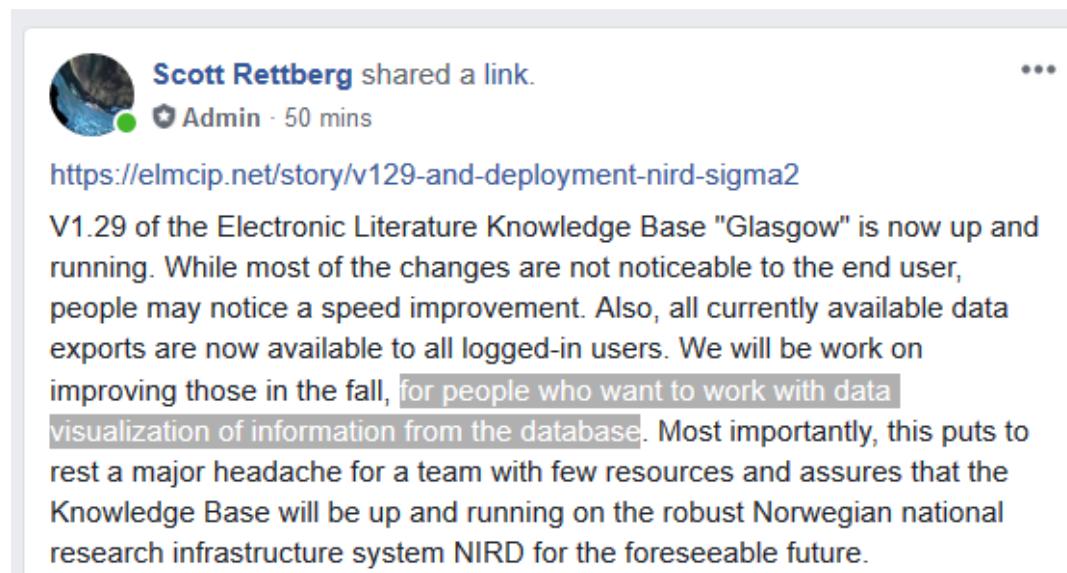


Figure 15. Cartographic representation with the Gephi software, by Jill Walker Rettberg.

⁴⁰ <http://www.electronicbookreview.com/thread/electropoetics/analyzing>

41 <https://gephi.org/>

Indeed, the development of digital technologies comes with new methods for organizing and producing knowledge. It is not merely a question of disposing of greater calculation power and a greater capacity for data production. It is also a question of rendering this data visible and legible, and potentially of varying its representations in order to produce fresh knowledge. The digital *milieu* therefore raises once again the question of visualization as a tool for the production and circulation of knowledge.

A screenshot of a Facebook post from Scott Rettberg. The post shows a profile picture of Scott Rettberg, his name, and the text "shared a link." Below this, it says "Admin · 50 mins". The link he shared is <https://elmcip.net/story/v129-and-deployment-nird-sigma2>. The post content discusses the release of V1.29 of the Electronic Literature Knowledge Base "Glasgow". It mentions speed improvements, available data exports, and future work on improving those in the fall, specifically for people who want to work with data visualization of information from the database. It concludes by stating that this puts to rest a major headache for a team with few resources and assures that the Knowledge Base will be up and running on the robust Norwegian national research infrastructure system NIRD for the foreseeable future.

Scott Rettberg shared a link.
Admin · 50 mins
<https://elmcip.net/story/v129-and-deployment-nird-sigma2>
V1.29 of the Electronic Literature Knowledge Base "Glasgow" is now up and running. While most of the changes are not noticeable to the end user, people may notice a speed improvement. Also, all currently available data exports are now available to all logged-in users. We will be work on improving those in the fall, for people who want to work with data visualization of information from the database. Most importantly, this puts to rest a major headache for a team with few resources and assures that the Knowledge Base will be up and running on the robust Norwegian national research infrastructure system NIRD for the foreseeable future.

Figure 16. Message by Scott Rettberg on Facebook (2018).

Tension: Extremely Sophisticated Representation Tools vs. A much needed Regime for Critical Interpretation

In the transition we are currently witnessing from an epistemology of measure to an epistemology of data (Bachimont, 2015), it may seem that the sophistication of our tools, particularly visualization tools, has not yet been accompanied by a new regime for the critical interpretation of these tools; this critical regime is still in a fledgeling state. These digital tools entail "a methodological implementation and a paradigmatic inscription and finally determine singular epistemological postures" (Bigot, 2018), without the designers of the tools nor the researchers who use them always being aware of it. These devices hold normative power over research practices but also over conceptions of scientific knowledge.

How might digital literature be of assistance to us in this shift from an epistemology of measure to an epistemology of data? Works of digital literature often have visually attractive interfaces. Yet the challenge still lies in the interpretation of these creations. We might draw a parallel with visualization tools, particularly cartographic tools. Such tools possess great visual attractivity, but it is essential that a new critical regime by which to assess them should be developed. Designing and analyzing works of digital literature could help us build this new critical regime of knowledge, insofar as it allows us to understand and interpret what is encapsulated in a digital device.

Conclusion

I have chosen here to focus on some of the challenges currently faced by digital literature. Digital literature is a tribune for tensions, an aspect which I brought to the forefront in a previous article, “Towards a tension-based definition of Digital Literature” (Bouchardon, 2016).

Let us reconsider some of the questions raised.

A new generation of authors are bringing about a shift towards the exploitation of existing digital platforms and socio-digital networks for their creations. Is there a risk that this transition might lead to a form of dependence, or even *complicity* with these industrial and commercial platforms? These environments and platforms used for digital writing allow authors to reach much wider audiences, but what might become of the experimental dimension of digital literature? Should we attempt to oppose the emergence of a homogenous global digital culture in order to preserve cultural specificities, and what role is translation likely to play in such developments? Digital literature is starting to become institutionalized and to find its legitimacy in the literary field, but is the associated literary experience still of the same nature as before? Indeed this new literary experience can be based on gesturality, and on a new way of telling stories. Having made this point, would not it be true to say that we are witnessing a shift from a narration-based self-identification process for the reader towards a more poetic self-identification process? Digital literature calls for new pedagogical content and methods to teach *digital literacy*. For teaching and research purposes, we need to preserve the works: could adopting a continual reinvention approach allow us to fight against the tendency towards obsolescence inherent to the digital medium? Also, to what extent can digital literature enlighten us as to the research potential of digital representation and visualization tools?

The notion of a *gap* to bridge which features in the title of the *ELO 2018 Montreal Conference* raises the much-debated questions of continuity or rupture, evolution or revolution concerning digital literature, but also, more broadly-speaking, the Digital. We should no doubt be wary of the ideology of “the new”. Indeed, it seems important not to give in to the ideological temptation of proclaiming a digital revolution, but to consider digital literature and other forms of digital writing as the next step in a long tradition of writing practices and materials⁴². Along the scale between continuity and rupture, where should the shifts and *gaps* on which this article is based be situated?

The book is a physical medium that, all along its history, has always offered an ever-increasing manipulability to its reader (for example, the passage from volumen to codex led to page numbering and tables of contents). The digital medium offers even more manipulability to the reader and is thus a continuum. There is however a form of *passage to the limit* (Bachimont, 2010) insofar as the whole mediation process is based on computation: everything becomes manipulable. With the Digital, it is not only the medium, but the content itself which becomes manipulable. Manipulability is the very principle of the Digital. Thanks to the notion of *passage to the limit*, one can think a break in the continuity.

It is this potential for a *passage to the limit* that makes digital literature so enthralling. Indeed, the steps yet to be taken and the bridges to be crossed give us the opportunity to retrace our past steps, to *revisit* certain notions: literature, the text, the author, narration (what I call the “heuristic value” of digital literature, cf. Bouchardon, 2014), reconsidering the Digital and the whole realm of technical means of which we dispose. Each leap forward is an opportunity to better understand what we are experiencing by looking back at previous developments. Bridging a gap is above all a leap forward into the future which allows us to rethink the past.

⁴² Scott Rettberg does this in his book on digital literature and genres, to be published at the end of 2018 (Rettberg, 2018).

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