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Interactive discourse in cultural dissemination: Innovation and electronic readers

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Abstract: This article discusses the intrinsic characteristics of interactive media, focusing on cultural dissemination applications and personal interaction environments such as multimedia computers with a pointer device (e.g., a mouse or tactile screen), a category that would include e-readers. The theoretical discussion will build on the history of the cultural CD-ROMs developed during the 1990s. The conclusions of this study may open useful new ways of analyzing and developing applications for cultural dissemination that will take full advantage of the characteristics of future generations of e-readers.

Keywords: Rhetoric of hypertext, Intermediality, Interactive design, Cultural dissemination, Electronic Readers, *i-Pad*

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1. Introduction

After several initial attempts over the past 20 years, it might finally be that e-book readers are becoming a normal part of our daily lives. Nonetheless, the significant differences between the new *iPad* from Apple and the rest of the competition provide a clear indication that we are confronted with a new medium we don't know how to use. In fact, this is not an exception but rather the rule with respect to all possible

interactive applications: we are far from knowing how to exploit the properties of digital media to construct discourse that has nothing equivalent in previously available media.

This article discusses the intrinsic characteristics of interactive media, focusing on cultural dissemination applications and personal working environments such as multimedia computers with a pointer device (e.g., a mouse or tactile screen), a category that would include e-readers. The theoretical discussion will build on the history of the cultural CD-ROMs developed during the 1990s. The conclusions of this study may open useful new ways of analyzing and developing applications for cultural dissemination that will take full advantage of the characteristics of future generations of e-readers.

2. The pragmatic situation of cultural dissemination

To focus the discussion, we begin by clarifying the pragmatic situation within which discourse of cultural dissemination occurs. In particular, it is important to specify the characteristics that permit us to distinguish it from didactic discourse, with which it is often confused. As with all complex concepts that are not immediately quantifiable, we cannot pretend to define precise boundaries: this would be an epistemological error and a conceptual impoverishment. However, it is useful to be clear about the conditions that best characterize a certain prototype of cultural dissemination.

With respect to cultural dissemination in museums, this effort to define a prototype can be found in Valdés (1999, 58ff). Mª Carmen Valdés begins with the classic categorization proposed by Coombs and Ahmed for the world of education: formal, nonformal and informal. These categories permit us to distinguish educational materials from those of cultural dissemination in any type of communication media (Trilla, 1993, 137) and in interactive media in particular (Ribas, 2001, 170). Educational materials basically fall into the formal or nonformal field, both of which are supported by a more or less official curriculum and take place in an organized environment with some sort of didactic purpose. Cultural dissemination, on the other hand, can be viewed as a part of informal education, that diffuse process that is permanently present in everyday situations where learning is not the only or predominant goal and individuals acquire and accumulate knowledge, skills, attitudes and insights.

This distinction allows us to assume an essential difference between the person who is a receiver of educational materials, motivated by extrinsic interests - the need for a credential, parental authority, social inertia, etc. - and the one seeking cultural materials, inspired by the intrinsic motivation of some prior interest in the subject in question. The approach to a cultural dissemination product -an exhibition, a documentary, an interactive product- is a voluntary act. This allows us to assume a kind of receiver with a certain capacity to be amazed, to delight in surprise, in discoveries; in a word, a subject sensible to admiration.

3. Admiration and cultural dissemination

It is well known that this desire and capacity for admiration has been considered the motive principle of thought, philosophy or science since the time of Plato and Aristotle (Ferrater Mora, 1955). The Greek word *Thaumazein*, normally translated as admiration, wonder or perhaps surprise (Balasch, 1995, 18) is considered the sole origin of philosophy in Plato's Teeteto (Platón, 1995, 155d). This concept is more fully developed in Aristotle's Metaphysics, including the detail of its intrinsic altruistic condition: "For it is owing to their wonder that men both now begin and at first began to philosophize; (../..) therefore since they philosophized in order to escape from ignorance, evidently they were pursuing science in order to know, and not for any utilitarian end. (Translated by W. D. Ross, Available from The Internet Classics Archive: http://classics.mit.edu//Aristotle/metaphysics.html)

And not only that. A few paragraphs later, Aristotle, by enumerating several examples, explicitly equates admiration for natural mechanisms with admiration for

constructed mechanisms, i.e., man-made artifacts: "For all men begin, as we said, by wondering that things are as they are, as they do about self-moving marionettes, or about the solstices or the incommensurability of the diagonal of a square with the side" (Translated by W. D. Ross, Available from The Internet Classics Archive: http://classics.mit.edu//Aristotle/metaphysics.html).

As often happens, these observations by Aristotle reveal extraordinary lucidity. Indeed, the prototype of the person who takes an interest in astronomy is very close to, if not overlapping, that of a person interested in cinema or painting or popular documentaries. This reflection leads to probably the best starting point for the creation and analysis of cultural dissemination materials: conspicuously taking advantage of the receiver's predisposition for the topic in question as well as for similar ones. Perhaps good discourse for cultural dissemination is that which, making proper use of the specific resources offered by the medium in which it is devised - written monograph or essay, audiovisual documentary or audiovisual essay, etc.- uses that existing attraction to sustain and increase the receiver's interest.

4. Specific characteristics of interactive discourse

The principal differentiating characteristic of interactive media is that the progression of the discourse requires that the actions of its user be processed. This has brought about the fact that the design of interactive discourse has traditionally been dominated by usability, an idea that is far distant from any other audiovisual or linguistic discourse and is, in the final analysis, derived from the thinking about the design of physical devices. To gain access to alternative, more rhetorical ways of constructing interactive discourse, closer to those of any other form of discourse, we would oppose to it, as a complement to this "design for efficacy" approach, what we have called "design for stimulation" (Ribas, 2001, 171ff). This type of design attempts to maintain and optimize receiver enjoyment, throughout the "implementation" process (Goodman, 1995, 217), as a way of supporting the transmission of content.

The management of action, which Janet Murray accurately has called the "primary representational property" of the computer (Murray, 1997, 74) is the principal characteristic of interactive media. What we consider complementary, at least in the personal interaction context we are focused on here, appears at the moment of homogeneous management of the various media the computer "remediates" (Bolter, 2000): sound, text and static or moving images of any kind, etc. The computer, then, can represent any imaginable combination of all these media through its screen and speakers. The possibilities offered by this combination, together with managing the user's actions, are difficult to imagine in our current situation, at the very beginning of the exploration and the first stages of usage of a polymorphic medium that has never before existed. We will call this second characteristic the integration of media, or intermediality.

Oddly enough, in the internet, the paradigmatic media today also for interactive cultural dissemination, the most used resources to connect the different media are not at all novel or innovative. Of course, we would exempt the art world, in which interesting experiments in artistic expression are being done as a natural outcome of its self-reflection condition (Eco, 1995, 368), which brings with it the inevitable exploration of the outer limits of the medium of expression.

In general, however, the internet appears to remain the Cartesian domain of the rectangle, of columns, of interminably long and difficult "scrolls", etc. The direct cause of this fact is that the two principal properties of the internet -its unlimited capacity to store and retrieve all kinds of content and the hyper communication it offers, the ease with which the whole world interchanges the role of sender and recipient- do not require any sophisticated sort of intermediality. A portal such as *YouTube* or any social network is appreciated much more for what is contained than how it is presented.

Without any disdain whatsoever for the participative possibilities that would result from the universal extension of the existing network, our emphasis here falls on products with a more "classic" style: an interactive multimedia proposal offered by an author or group of authors to a possible receiver within a context resembling reflexive reading. As with reading, sharing or providing complementary experiences or even widening the boundaries of the original text can be as interesting as the original activity of reading, but these are not the nucleus of the entire process.

5. A first attempt: CD-ROM in the 1990s

In the specific field of interactive cultural dissemination with this type of product, we already have one extraordinarily interesting example of exploration of the potential for interactive discourse. In a little less than the 10 years that comprise the 1990s decade, we saw the development of a type of discourse that became increasingly brave in its use of the characteristics of interactive media that we have just described. The medium available at the time was the CD-ROM and most significant products were produced in the United States and various European countries, especially France, where the initiatives for museums sponsored by the *Réunion des Musées Nationaux* (RMN) led to the appearance of a variety of companies (*Montparnasse Multimédia*, *Index +*, *Hyptique*, etc.) that developed increasingly interesting products. A study of these CD-ROM projects offers a paradigmatic example of the evolution of interactive media.

5.1. The computer as a communication medium

We would highlight here that the computer is in a very fundamental sense a device that differs from all others. All inventions appear with the intent of performing a particular function that was more or less predictable prior to the invention and, in any case, is consolidated soon afterwards. The initial function (and, in the strictest sense, the only real function) of a computer is to do complex calculations in a programmed manner. However, the possibility of codifying any kind of binary information soon led to the discovery that a computer could behave "as if" it were other things. The optimistic majority opinion in the earliest decades of computing revolved around the utopian ideas of artificial intelligence. Illustrious thinkers such as Turing or Minski contributed to this vision. However, a few visionaries such as Nelson and Engelbart began to work on the possibility that the computer could support a new and extraordinary medium of communication (Bolter, 2003, 16ff).

Alan Kay was directing in 1977 the Dynabook project at the Xerox PARC Centre. The Dynabook was a "dynamic personal medium" that is the true prototype of the personal computer. Kay's clairvoyant opinion at that moment is especially interesting. He already had a clear idea that the principal function of computers would be to support a new medium of communication: "Although digital computers were originally designed to do arithmetic computation, the ability to simulate the details of any descriptive model means that the computer, viewed as a medium itself, can be *all other media* if the embedding and viewing methods are sufficiently well provided" (Kay, 1999, 112).

The work and the ideas of these pioneers began to penetrate society with the first Macintosh computers, where they had a direct influence through personal contact, and more generally with the development of graphic user interfaces. During the '90s, at the end of which videos could be viewed at a reasonable level of quality on personal computers, the idea of computers as a communication medium became part of the collective subconscious.

If we consider the computer to be the supporting technology for a great new media, digital media, its atypical origins point to substantial differences with respect to earlier inventions. To test this, we can apply to digital media and then to interactive cultural dissemination the "genealogy of media" theory developed by André Gaudreault and Philippe Marion from their detailed analysis of cinema. Although this model arose from the study of a widely known medium such as cinema, Gaudreault and Marion suggested (Gaudreault, 2005, 13) that it could be applied to various

scales of expression and it becomes clear that this is the case for "off-line" interactive cultural dissemination CD-ROMs.

Their model got the name "double birth" because it focuses on the process between the appearance of the technology and the constitution of the medium, its second birth or true consolidation. This transition is divided into three phases: appearance, emergence, and constitution and is then characterized in various ways, depending upon the agents involved (inventors, camera operators and directors, in the case of cinema), the production processes, or relationships with the institutional environment and with similar, already established, media.

We could reasonably postulate that in the case of the computer there was another prior phase that does not occur in other media. Indeed, any new technology or new arrangement of a technology begins its journey of expression immediately, associating itself with the media and existing processes that are most closely related. As we just noted, before getting to this point, the computer had to go through a previous phase of "conscious-raising" as a medium of expression and communication, a "self-awareness" phase.

The end of this previous phase is evident in the cultural dissemination CD-ROMs. In fact, the first products, developed between about 1990 and 1994, were simply executed as one more window of the operating system and therefore are surrounded by the desktop, folders, and recycled bin. They often incorporate system resources (*Copy*, *Print*, etc.) and as a result they place the user in a "work" environment, "using" a "tool". A good example of this approach is "Microsoft Art Gallery" (Microsoft, 1994), an application developed in 1991 for the National Gallery in London and distributed in 1994 by the big multinational software corporation (Figure 1).

Figure 1: Microsoft Art Gallery

Beginning in 1994 at the latest, the information paradigm is replaced by cinematography, the tool by the medium, the window by full-screen, the resource by the attraction. The first edition of the "Le Louvre" CD-ROM (Montparnasse Multimédia, 1994) already controls the system functions, makes the screen borders black and begins with immersed credits accompanied by music (Figure 2). From that point on, this would be the norm in the majority of these products.

Figure 2: Le Louvre, Introduction screen

5.2. A medium in search of its characteristics

The rich proliferation of cultural dissemination CD-ROMs at this moment in time also permits us to watch the next step in the appearance of the medium: the search for its own characteristics.

Normally, the first period of discourse in a new medium imitates the most similar existing media. The first television was called "visual radio" and the first narrative cinema, which in the United States was called photo-plays, were nothing more than a photographed theatre performance. Until the development of editing as a means of generating expectations or associating ideas, of framing, of point of view or special lighting, cinema was not a grown-up medium, master of its own characteristics. There is an enormously significant step from the "additive" characteristics to the "emergence" of characteristics specific to the medium (see the article by Joan Soler-Adillon in this issue). As Janet Murray points out: "one of the lessons we can learn from the history of film is that additive formulations like "photo-play", or the contemporary catchall "multimedia" are a sign that the medium is in an early stage of development and is still depending on formats derived from earlier technologies instead of exploiting its own expressive power" (Murray, 1998, 67).

This fact that it relies on existing formats to construct discourse in the new medium is observed paradigmatically in the first cultural dissemination CD-ROMs. In fact, the two primary entry points in the first edition of "Le Louvre" are nothing more than a "catalogue" by schools of painting (Figure 3), taken directly from the numerous existing canonical catalogues in print, and a "visit" (Figure 4), a photographic transposition of an actual walk through the halls of the museum. Later CD-ROM museum products, such as "Orsay" (Montparnasse Multimédia, 1996), maintained the same structure, although they did incorporate more immersion technologies such as the first version of *QuickTime VR* to improve the realism of the visit to the museum.

Figure 3: Le Louvre. Catalogue

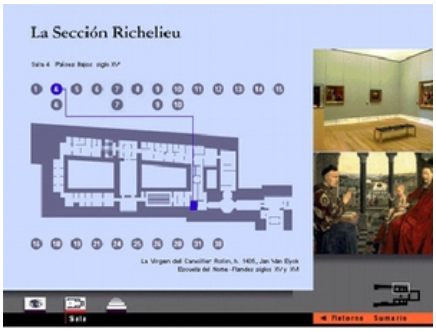

Figure 4: Le Louvre. Visit

The appearance phase in the double birth theory is characterized by this repetition of earlier formats. This repetition slowly evolves as the developers get to know the medium, until it achieves its own autonomous expressiveness, accompanied by a process of institutionalization: "...despite the "attraction" of the new apparatus,

despite its status as a technological novelty, the medium was nevertheless used back then to do the same old things. (../..) It wasn't until cinema's practitioners arrived at a reflexive understanding of the medium and until the cinema achieved a certain degree of institutionalization that the medium became autonomous." (Gaudreault, 2002, 13-14).

5.3. Some defining characteristics

And, indeed, the CD-ROMs of the later '90s started to develop expressive characteristics intrinsic to interactive media. A first analytical description of a few examples can be found at (Ribas, 2009, 48 ff). As a common property, all of those cases are characterized by creative usage of the intrinsic aspects of the medium described here, all contribute innovative ways of relating the different media to each other and to action management.

A few local examples are found in some sections of the first products we have cited. "Le Louvre" (Figure 5) used the typical option of dragging a "magnifying lens" icon to enlarge the paintings; control could be passed to a recorded explanation that would take over management of the lens, offering a succession of selected "details" -or not- (the user had the ultimate decision about control of the magnifying lens). The "Orsay" CD-ROM (Figure 6) used the traditional explanatory animations of various aspects of the paintings, resolving them by using a panoramic-collage feature achieved by subverting the then-new *QuickTime VR* technology: the recording would drag and enlarge a cylindrical area of images to support a timed discourse, which the user could interrupt and control at any point.

Figure 5: Le Louvre. Magnifying lens and "Details"

Figure 6: Orsay. Panorama / collage (fragment)

Later products include other truly innovative examples. In the "3 ème Biennale d'Art contemporain de Lyon" CD-ROM (Figure 7), the subtitles of an interview with an artist can be dragged, similar to a typical screen "scroll", dragging along the video time, advancing or "rewinding" the interview (Réunion Des Musées Nationaux, 1995). In "Makers of the 20th Century" (Figure 8), an actress is filmed so that the video is perfectly fitted to a graphic interface: her actions (playing soccer, dancing...), show a first knowing wink on the activity of the person selected by the user (Pelé, Isadora Duncan...) (News Multimedia, 1996).

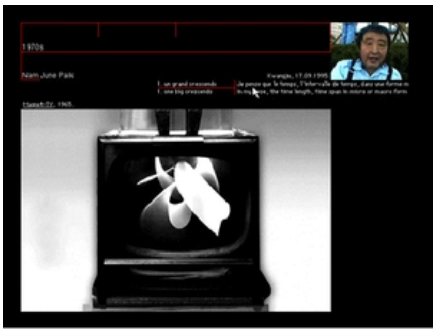

Figure 7: 3ème Biennale d'Art contemporain de Lyon

Figure 8: Makers of the 20th Century

In other cases, the innovative use of media is an essential component of global arrangement, the macrostructure of interactive discourse. An extraordinary case is the transposition of the comic's format to interactive media in "Opération Teddy Bear" (Figure 9): the vignettes contain time sequences, sometimes simultaneous on-screen and always supported by a narration; user actions integrated into the diegesis (for example, wiping away condensation from a window) allow the development of the plot, etc. (Index +, 1996).

Figure 9: Opération Teddy Bear. A full page

Other products use structure, and therefore its discovery by the user, as a meaningful resource. This is the case of "Moi, Paul Cézanne" (Figure 10), which divides, with clear experimental, essay intention, its exploration of the painter's life into 5 sections: the study, the museum, the station, the taverns and the landscape, unified by animations in which Cézanne's own words are used to relate unifying concepts across these frameworks (Index +, 1995).

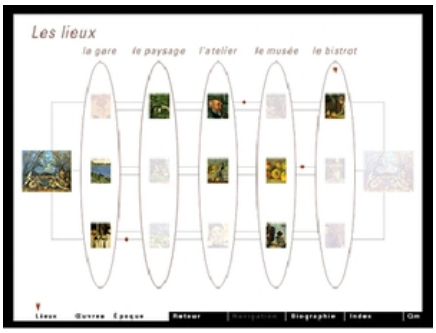

Figure 10: Moi, Paul Cézanne. The navigation page with 5 spaces

In our own product, "Joan Miró. El color dels somnis" (Figure 11), the level structure, with a different medium driving each one - exploration and various fictionalizations in the first and second levels; audiovisuals with a documentary spirit in the third; text, image and characteristic options in the fourth and hypertext in the final level - leads the user exploration and involvement at the same time content is transmitted (Fundació Joan Miró, 1998).

Figure 11: Joan Miró. El color dels somnis. Exploration

5.4. Non consolidation in cultural dissemination using CD-ROM

It seems absolutely clear that one of the conditions for the consolidation of a medium, that "its practitioners arrived at a reflexive understanding", was more than met in just 4 to 5 years at the end of the '90s. We find it reasonable to conclude that non-consolidation was due to the lack of meeting the second condition, constitution, "to achieve a certain degree of institutionalization". Indeed, in this constitution phase, once a medium shakes off its subordination to earlier media and gains momentum, it begins to reveal some of its own expressive modes. If this has the necessary support in the institutional and economic bodies the medium acquires its own "culture", and is consolidated. As described by Gaudreault (2005, 13): "Its second birth, or constitution, will appear when its quest for identity and autonomy coincides with institutional recognition and a decisive improvement in the economic resources devoted to its production."

6. Some of the causes of non consolidation

The absence of the mentioned institutional, social and economic recognition at the time impeded the consolidation of this new way of constructing discourse in cultural dissemination using personal interactive devices. The incipient culture that developed around them did not achieve this consolidation. We will highlight some of the causes of this lack of recognition, with the goal of better understanding the possible scenario for cultural dissemination with respect to the new generation of personal electronic readers.

The most important causes were derived directly from the complexity of CD-ROM technology. Indeed, to function properly, these CD-ROMs required a multimedia computer, without necessarily conforming to any uniform standard, running specific programs with installation process often complicated. All of this made them

extraordinarily susceptible to all types of errors, even after they had run successfully several times. Only the very determined and computer-savvy user could actually gain access to enjoyment of the CD-ROM's interactive discourse. As difficult as it is to interest a sufficient number of people in any cultural activity to establish a new "culture", in this case the difficulty was multiplied to the limits of impossibility.

This serious situation, together with the material nature of CDs, made it difficult to establish a viable business model. Over a certain period of time, only the contributions made by public entities such as the RMN in the case of the major French productions could counteract this problem. In addition, and partly as a consequence of this fact, publishers employed a series of spurious strategies such as distributing free cultural CD-ROMs of very poor quality and devoid of innovation, which irreversibly damaged the reputation of the medium and made it impossible for consumers to know how to distinguish between the various levels of quality among the available products.

The move to the internet provided a solution for many of these problems. It was a solution but also the final ending for the incipient medium. Since all applications worked within a browser, the technological problems and learning requirements for users were drastically reduced. In addition, virtual distribution was much simpler and more economical. These two circumstances made access available to a much greater number of people, with fewer demands on their previous skills. Undoubtedly, the internet offers a sufficiently large pool of people to support the consolidation of any particular "culture" at all. There are innumerable examples.

However, this was not the case for interactive cultural dissemination. On one hand, the move to the internet implied a series of changes that made it difficult to support and to make profitable an already complex business model. On the other hand, the change inevitably meant radical modifications to the discourse, which implied a distortion of the forms of discourse we have described.

In the first place, confining functionality to the browser window brought with it a paradoxical return to the computing situation present in the medium's initial self-awareness phase. Secondly, the drastic reduction in bandwidth from the CD-ROM format to the early internet, together with the browsers' initial blindness to non-text content, brought with it an overall shift to applications exclusively based on text and images, or made of small interactive fragments. In addition, successive expansion of hypertext markup language (html) until it also became a standard for video and audio meant that rectangular html design was extended to many multimedia products. All of this, reinforced at the height of the "dotcom bubble" by many designers working in other media, especially print media, who became web page developers, meant a domination of design by concepts such as "efficient", "professional", "transparent", "invisible", to the detriment of developing a design approach of "self-awareness" of the new medium.

Probably most important than all these specific causes of non consolidation is the effect of the internet explosion on public perception of the potential of interactive media. The center of attention has moved toward extreme connectivity, so that there has been a synecdochic reduction of the very concept of interactivity. This concept is today confused with the computer's potential to manage communication between individuals, leaving aside all of its potential in generating interactive discourse.

7. E-readers today

In their current format, e-readers are an artificial medium from the point of view of the genealogical model we are using. Their acceptance is beginning with the process of institutionalization: enormous economic interests are trying to consolidate a medium that does not exist. Furthermore, these interests come from the consumer electronics industry, a totally different sector from that of the agents who should generate the medium itself (inventors, writers and specific publishers etc.). These agents, in fact, do not exist either, since they have not been created according to the model of appearance, emergency and constitution. The attempt to involve the publishing sector obeys the need to fill this gap with whatever the electronics industry believes that best resembles these agents. The "e-book medium" also has

not followed the genealogical model of appearance and emergence; it is simply a substitution, and supposedly even an improvement. This atypical phenomenology could explain some of the contradictions that will probably lead to failure in their current format.

In fact, e-readers are not designed for the mass consumer of digital products, to whom they offer much less functionality than any portable computer. Their target population is people over 40 who have adapted to the digital environment but were not raised in it, who appreciate the symbolic value of the printed page, and therefore presumably prefer a combined format over a total replacement for the codex format.

However, e-readers also do not seem to be the ideal product for these individuals. They have important deficiencies, particularly for this population segment: problems with quality and usage, such as screen hue, style and readability of typography, and bad page transitions; lack of respect for layout, such as misplaced illustrations, absence of page numbers, loss of color-coding and of photographic quality, and illegibility of complex graphics; and incompatibility in formats, players, etc. Serious technological problems have also been reported, including the disappearance of text in full sunlight, which creates doubt about the advantages of reflective electronic display as compared to back lighted screens. Some people report a preference for reading books on their tiny *iPod* or *iPhone* screens (Baker, 2009).

This brings us to the reasonable hypothesis that the new *iPad* tablet could become a new prototype for a true "electronic book". In very few years, Apple has figured out how to create a potent "culture" around the *iPod* and *iPhone* that will undoubtedly incorporate that of the *iPad* and accelerate the consolidation process of the new medium. With respect to its competitors, first of all the *iPad* has the advantage of targeting the majority sector without neglecting lifelong veteran readers, although perhaps these will also buy some accessory that will make it seem more like a notepad. The *iPad* fully responds to the most reasonable suggestions about a path to the convergence of multiple devices: "It is not crazy to imagine a device that reads books, plays music and video, takes photos, runs video games, includes a radio, and of course can access the internet." (Gil, 2009, 36).

8. Electronic readers and interactive discourse in cultural dissemination

However, as one might expect, and as has occurred with all media, ideas like that typically do not exceed the idea of the mere "addition" of media. There are so many ways to access content and options for connectivity that it seems nothing more is really necessary. Our proposal is to take advantage of this new medium that seems to be finally flourishing and attempt to take it further, to explore the possibilities for integrating all that media that the digital environment can offer, along with the actions of the human reader, to build, to support the emergence of a discourse with its own unique characteristics.

This discourse could be more or less subsidiary to connectivity, could be designed for populations with varying habits of reading or audiovisual consumption, could have dedicated uses for publicity, art, entertainment, cultural dissemination... It seems clear that none of the specific circumstances that killed the CD-ROM experiment will be relevant to the new medium. The numerous "native" applications that support the success of these "i-devices" offer a solid basis, without the limitations to discourse we have discussed, to allow for a consolidation of various "cultures", including that of cultural dissemination.

These devices will experience all of the normal difficulties faced by any cultural product, but it does not seem that they must necessarily face obstacles to the development of intermediality formats that resemble the essay, documentary, maybe books with illustrations, that attempt to inspire the reader's admiration by using to the fullest the rich expressive resources of a true electronic book.

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