Digital Literacies

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Abstract

This paper analyses the concept of digital literacies, focusing on recent changes in the concept of literacy itself and how the latter affect the so-called "new literacies". An outline of the core components of digital literacies is proposed, and one of these, the "multimediality" of many literate practices, is analysed in detail. Finally, the paper proposes a shift whereby the question of digital literacies might be considered as a research question and not just as an applied field.

Introduction

Any discussion of the field of digital (or electronic) literacy requires a number of initial distinctions to be drawn so as to place it within a theoretical framework from which it can be analysed. Failure to do so means that the most immediate image projected by the field is that of the learning of certain specific techniques, and perhaps associated skills, in a functional conception of literacy - in other words, it is seen as the adaptation of a generic literacy to the practical context introduced by computer and information technologies: learning to use computers and their general applications, word processing, electronic mail, search engines, and a long etcetera which is difficult to delimit. Clearly this is a necessary focus, and this paper does not question it, but if considered the only one then we run the risk of ignoring many other approaches to our understanding of literacy, and of reducing the digital revolution to a set of technical applications.

1.   Changes in our understanding of literacy

The first distinction that has to be drawn refers to the term "literacy" itself. We would be mistaken were we to believe this term to have an accepted meaning, on which there is unanimous agreement. On the contrary, few terms can be as complex: while in the past it was associated solely with learning to read and write, today the term *literacy* contains a

range of fine distinctions. (Note that in the rest of this discussion we shall take literacy to refer to written or literate culture and practices). The same is true if we examine its brief, but controversial, history. Below, while not seeking to undertake an exhaustive review, a brief analysis of the principal debates and changes is provided.

(a) From a psychological conception of reading to a social conception of literacy.
Arguably the most significant change of all, as Lankshear & Knobel (2003) claim, has been the gradual shift along a continuum whereby the earliest ideas concerning literacy perceived it solely as the acquisition of certain cognitive skills. In other words, it was seen as the acquisition of a code: in the case of a code of correspondence between the written and the spoken word - reading, and in the case of a code of correspondence between thought and the written language - writing. This idea was undoubtedly strengthened by the restricted access which for centuries was placed on writing, and the part played by state schooling, concerned as it was with class origins and its liberating role. Undoubtedly, the work of Freire (Freire & Macedo, 1989), and his social and political conception of literacy, demonstrated that behind reading, and the first steps in learning to read, there lay a conception of the world, and that the texts were not as aseptic as the reading exercises supposed.

Parallel to this, other authors working in the field of linguistics reached similar conclusions. Bernstein (1972) and Halliday (1978) are without doubt the best known of these for their social conception of language, as well as for their mutual influence on each others' theories. And, alongside them, we find a large number of linguists, sociologists, sociolinguists and pedagogues (including Gee, 1996; Bourdieu, 1977) who have sought to recast language - speaking but also reading and writing, as something intrinsically social and which cannot be seen as "solely" linguistic.

A third influential factor has been the consideration of literacy as a matter of educational policy, though not solely linked to formal education: for example, the discovery of a significant number of illiterate adults, as late as the 1970s in the United States, placed the issue at the centre of debate.

A fourth factor has been the influence of sociocultural studies, in particular the pioneering work of Luria (1976), Scribner & Cole (1981), and Olson (1994) in relation to writing, which have been critical for our understanding of the relationship between literacy, cognitive capacities and the social environment – in particular, the school.

(b) Competence, process, practice.
In addition to this social focus - one that is not merely psychological or linguistic - the other group of conceptual changes that have occurred are much more closely centred on the way of analysing literacy, and respond to various interconnecting approaches.

On the one hand, literacy is seen as a competence (as opposed to *performance*), that is, as a cognitive capacity capable of generating numerous specific forms. Educational conceptions of this competence are particularly valuable when they contrast the simple analysis or evaluation of the performance, but they are even more so when they include a social/cultural component within the very heart of the idea of competence - in other words,

treating literacy as a communicative competence and not solely as one that is simply linguistic or cognitive, that is as a social competence that takes into consideration the cultural and interpersonal context in which it is produced.

Further, literacy is typically seen as a process that has an end: the literate subject. Illiterates (a truly derogatory term, used solely to describe a negative state) are those who have not been exposed to this process, and who lose this label when they have worked their way through the process. However, little consideration is attached to the process itself, seen as it is as a mere educational formality in the achievement of the final state. Even in functional, or in digital literacies, the ultimate goal is to achieve a final literate state. This way of thinking is clearly insufficient for two reasons: a) it fails to consider the procedural nature of many of the components of literacy, which far from terminating at a specific moment in time, continue to evolve and change (as, for example, the digital contents that never cease to change, or those that make up the various functions that can differ for each individual); it is, if you like, an open process with the individual being subject to various processes of becoming literate. b) it also fails to consider the gradual nature of becoming literate: even those of us that are reading this text are illiterate in other genres, in other functional domains, and even in other languages (some can speak or understand a foreign language without knowing how to write it; others can read and write electronic mails in a foreign language without knowing how to speak it). The gradual nature of literacy recognises that it is a continuum, one of competence, in which there are many positions and not just two categories (literate/illiterate). Caviglia (2003) has even suggested talking of "advanced literacy" to refer to forms of literacy that go beyond knowing how to read and write.

Finally, literacy can be seen as a practice - that is, as an activity undertaken by the subject which is full of meaning and which, furthermore, transforms reality. Practice, in this sense, stands as an opposite of performance, and also of speech (in the binary pair language/speech), and, in general, of the conceptions that see in the activity the simple coming together of a pre-existing structure (Bourdieu, 1972). In other words, when a text is being read one is not simply undertaking a literate activity of reading, understood as the decoding of a linguistic document, rather it is much more: a culturally determined act (each literate practice has its own distinct format: it is not the same to read a book as it is to read a newspaper, or an advertisement or a web page), in which the reader is transformed by the reading at the same time as he personally appropriates the text. To think in terms of literate practices is to emphasise the individual and cultural differences that exist in each activity, and not to include them all under the same heading of "reading" or "writing".

In general, reflecting on the uses and consequences of technology in educational contexts has tended to lead to greater uniformity rather than to greater differences. Perhaps this is the result of an excess of theoretical generality, or because more complex models have not been used. Yet, what is true is that the accent has been placed on technology and on teaching methodologies, with very little thought being given to individual differences other than as effects measured in results. The idea of practice, on the other hand, changes the focus of analysis: no longer solely concerned with results, it highlights the relationship between the cultural (and technological) context and the forms of specific use adopted by the subjects. Something similar occurs with literacy[i]. As Scribner & Cole (1981, 236) pointed out when analysing the concept of practice in their study of literacy among the Vai:

"...we perceive literacy as a set of socially organised practices that make use of a system of symbols and of a technology to produce and disseminate it. Literacy is not simply knowing how to read and write a given text but rather the application of this knowledge for specific purposes in specific contexts. The nature of these practices including, of course, its technological aspects will determine the types of abilities associated with literacy."

In short, both types of conceptual change, those that emphasise the social nature of literate practices (as Viñao, 1992, does) and those that question a simple analysis in terms of a competence attained and performed almost mechanically with any text, lead us to see literacy as a complex problem, almost as a space for analysis with no clearly defined limits, within which many situations and activities not previously contemplated have been included. Where will this theoretical shift lead us? What are the consequences for digital literacy?

2. *New literacies*

The basic consequence is to approach those human activities in which the written culture intervenes (be it on paper or on the screen) in another way: that is, by extending the concept of literacy beyond the learning of illiterate subjects (children or adults), and to see cultural practices and personal appropriation wherever written mediation exists, not only when the subject is learning but also when he or she is "competent", and not just in formal situations of education but in any situation.

Some of these ideas can be seen as underlying a new conceptualisation in two ways: in the so-called "new" studies on literacy - that is an academic sector that defends a theoretical approach, and in the rediscovery of "new" practices that had not attracted much attention until a few years ago, or rather because they are new and did not previously exist.

The "new" studies on literacy, represented paradigmatically (although not exclusively) by a group that published a manifesto in 1996 (The New London Group, 2000), expanded interest in the field in various directions: a) by highlighting the plurality of literacies, what they term the "multiliteracies" - in other words, not limiting themselves solely to the oral and written language, but including any form of communicative and cultural manifestation. This expansion also means resituating the role of language within other systems of communication; b) by developing a critical conception of literacy, that is, a conception which (in line with Freire and other others) denies the neutral character of literacy, seeing it rather as a set of social and political decisions; c) by connecting this critical approach and thematic expansion with education, in such a way that role of the teacher becomes more like that of the designer of experiences and practices, through which what is learnt and how one learns is shaped simultaneously - defending the critical and political nature of education, therefore, while placing the emphasis on the processes of production, for teachers and students alike, rather than on those of reception, consumption and analysis.

In parallel to these academic contributions, other authors have logically "discovered" how the new media have influenced daily practices (not solely literate practices) in a range of

contexts: education, the workplace, the home, among groups of friends, etcetera. It might be thought that, to a great extent, this is simply an extension of Media Studies, or, in the Spanish context of Communication Studies which are largely similar albeit that they adopt a more applied approach. Their interest in new literacies is, in part, motivated by the wish to obtain a detailed description of them: something quite obvious which, however, does not as yet exist. Several authors have proposed the undertaking of three tasks as regards digital literacies, namely their description (although their characteristics are always changing), an analysis of their functioning modes, and a critical analysis of their implications.

Alongside these approaches there are others, of a more academic nature, that have focused on seeking to discern what is understood by digital literacy. Thus, Bawden (2002) in a wide ranging review of the concepts of information and digital literacy, undertaken form the point of view of the librarian, points out that these concepts constitute a set of definitions that do not always coincide, and even though they insist on the same central idea (the capacity to use the digital sources of information), agreements cannot be reached. Bawden's report shows how in a field that is even more restricted than that of education it is very difficult to obtain definitions. The same can be seen in a checklist of traits and characteristics such as that produced by Larsson (2000), which is in fact more like an enumeration of skills. Gilster (1997) in his well-known book about digital literacy does not offer a checklist but rather focuses on the theoretical discussion, and has been criticised for so doing. Gutiérrez (2003) also undertakes a theoretical reflection, at times applied in approach, as well as a general review of the various approaches adopted to digital literacy. Cassany (2000) reviews the differential characteristics of digital reading and writing compared to their analogue counterparts, and sees digital literacy as a specific mode of functional literacy - in turn dependent on traditional literacy - reading and writing. This approach is perhaps clearer than others, but it reduces digital literacy to the verbal language and presupposes a logical hierarchy that is by no means evident - e.g. if we consider literacy more as a process than as a state.

In short, the attempts that have been made to offer a common, single focus to what we understand by digital (or electronic, or network, or, even, information) literacy do not lead to unequivocal solutions. Inevitably, this is the case for various reasons: 1) in particular, because of the conceptual renewal, described above, that has taken place around the concept of literacy. It would be unreasonable to expect that in a field undergoing transformation, a single definition might be offered of a set of poorly defined practices, in the throes of constant expansion and change. 2) because of the distinctive approaches with which literacy is being examined. It is sufficient to review the numerous books and articles dedicated to the discussion of literacy in general, and digital literacy in particular, to see that there are many legitimate points of view and, in general, they largely fail to coincide.

It cannot be said that this confusion is the consequence of the theoretical shift described earlier, but rather that it is almost consubstantial with a concept which, beyond the scientific incursions made by various disciplines, reveals itself as being profoundly ideological and as a field for theoretical confrontations.

3. *Research agenda and applications in education*

3.1. Challenges

The review undertaken to this point shows that behind the expression "digital literacy" lies much more than a list of skills for working with computers and the Internet. For this reason, this section outlines a number of pedagogical ideas, and emphasises the importance of developing a long-term research programme.

An educational research agenda for digital literacies means, first and foremost, adopting a clear stance on the digital revolution, centred on a specific framework of thinking. Some of the ideas outlined earlier have demonstrated the extent to which our thinking about literacy has changed in recent years, and in most cases without any direct link being made to digital practices. For this reason, pedagogical thinking on digital literacies depends on the approach we take in analysing the digital age, and consequently both educational practice and research will be framed within such an approach.

These approaches have, on occasions, been named "metaphors" (Nardi & O'Day, 1999), or "mindsets". All of which emphasise how the approach adopted towards digital technology brings various aspects to the fore while obscuring others. For example, if the technologies are seen as a tool (for educating), the tendency is to see them as something that can be measured in terms of their effectiveness. If they are seen as part of the social framework - almost in an ecological way, this approach places their instructional effectiveness in the background and views them in a much wider context. The same occurs if an "internal" mindset is adopted, that is, the mentality of those for whom digital technologies already constitute a familiar part of their world (similar to the situation that occurred with earlier technologies such as the telephone or the television), and who use them spontaneously in communicating, learning and for entertainment, as if they were what we might call "native users". By contrast, an "external" mindset is the mentality of those who have learnt to use digital technologies as adults and as something completely new, and consequently these subjects have not always understood them perfectly. These same attitudes and mindsets determine the use of technologies in schools, where in the best of cases they are introduced by teachers that have an "external" mindset towards technology and the digital world.

It is possible, therefore, that any attempt to introduce an educational action programme should be made in the short- or medium-term, ruling out the long-term not only for reasons of technological change but also the generational shift, which will mean the access of persons who see technologies as "natives" and who will increasingly adopt less instrumental metaphors. Moreover, the aim of a digital literacies research programme supposes the consideration that the basic concepts of education and learning are not exempt from redefinition, that they be adapted or even rethought in the light of new communicative patterns in which literacy practices are founded. Many authors defend a radical format for this type of research programme, taking the need to redefine learning and education in the context of digital literacies for granted (e.g. Gee, 2003; Soetaert & Bonamie, 1999), thereby uniting themselves to a large sector of critical thinking on education and learning which, originating from other approaches, has shown that this need to rethink basic concepts

predates the digital age.

What indeed seems true is that attempts to assimilate new communicative and cultural patterns within old educational frameworks cannot be achieved without first modifying the latter. This is the opinion, explained in detail, of Bereiter (2002) when he argues about the ultimate goals of education and in which he rethinks the individualist conception of knowledge in the digital age (of knowledge in general and education in particular, as for him no difference exists between the two). Other approaches that do not take into consideration the digital world but rather see it as something related to computers and programming, or that only see the instrumental component of digital literacy (learning techniques and skills, certain programs and applications, in a narrow functional understanding), are clearly poorly focused, both in the context of new studies on literacy and the wider, more global analysis of the digital age (Castells, 1996).

Having raised all these warnings and highlighted these differences of interpretation, how then should we proceed? How can we make the most of these critical analyses of literacy and the changes introduced in our societies by the digital technologies and the new media? How can we go about changing education? Clearly there is no one answer, nor probably even a good answer to such questions. Yet, what is becoming increasingly clear is the need for a wide ranging debate on digital literacies that goes beyond a discussion of the here and now. And that a possible format for this discussion is the proposal of a research and action agenda - with all the problems and biases that this might entail.

3.2. Distinctions and axes of analysis

Digital literacies can be broken down, at least in an initial analysis, into a set of interrelated axes: a) some of a marked technological nature, related to the material that supports the literate practices; b) some related to the linguistic and extralinguistic competencies, or, in general, with the cognitive capacities associated with their use; c) some related to the literate practices, their context, the way in which they are used and the social and personal consequences of this use; d) some, in short, to the critical capacity to see the digital practices as socially constructed practices. These axes are proposed because they allow us to raise interesting questions, and because between them they offer a possible methodology. To give one example of the type of question to which they give rise, the fourth axis allows us to ask what might be considered a literate practice and who defines it as such[ii].

Arguably the least clearly defined of these axes is the one that appears to offer the greatest clarity: the technological bases of literacies. Although they can be simply named, there lie many problems concerning the way in which the technology and the new inscription and writing supports that underpin the new literacies should be seen. The digital technologies are no exception, on the contrary, they occupy a new place in the long history of technologies, and there is no agreement as to how the technologies relate to social developments. Opinion varies from those who, like McLuhan, think that they are widely deterministic and that technological changes give rise to direct changes in the configuration of the society, to those who, like Williams, see them always as a social process in which, in one way or another, they are specifically integrated. The technologies are above all, and this is something that McLuhan (1964) demonstrates quite clearly, materialities that,

because of their medium and physical characteristics, transform the way of undertaking actions.

Digital technologies mark important differences even with other recent developments, especially if we consider the computer as being most representative of a long list that includes (digital photography and video, mobile telephones, PDAs, digital audio systems, virtual reality, wireless communications, etcetera), which only takes into consideration the physical technologies and not those related with software.

The computer is a medium but, at the same time, it is a true *metamedium* which digitally incorporates what were previously separate analogue media. This characteristic is central in order to relate the digital world with what it is not: the computer is capable of processing and representing all kinds of digital information in an integrated manner, something that is quite impossible in the analogue world in which, at most, two media join forces if they share the same physical channel of transmission (e.g. in the way that television integrates audio and video capacities, and printing allows us to bring together written text and images). This "metamedia" capacity is being extended to other screens governed by digital processors: the PDAs contained in a mobile telephone, or mobile telephones that contain a digital camera, in a process of continuous technological convergence. But the importance of the metamedium lies in two aspects: 1) it makes uniform many of the differential characteristics of the other media centred on a set of specific digital properties; 2) it offers a unified experience to the user, who receives it in a specific context of reception - that which proposes the computer as the medium, in this case always via a screen controlled by an interface.

What are the specific properties of digital technology? Does there exist a *nucleus* of differential characteristics? To a certain extent it can be said to exist and digital technologies can be considered as being distinctive from analogue technologies, although with two provisos: it is not so closely related to the medium of digital technologies (owing to its "metamedia" character) as the earlier media, which were linked to the physical channel of transmission and to the "monomedia" form of the interface - only in this way can it be considered that the determinist position held by McLuhan does not apply to digital technologies. Furthermore, this way of characterising them means the suspension, momentarily, of considering them as forming part of daily and educational practices, which resituate the importance of their communicative characteristics in accordance with other more specific or applied properties.

In fact, it is almost commonplace to distinguish various of these specific properties, which together would make digital technologies distinctive, and which would therefore constitute a principal axis of digital literacies. This way of approaching the issue allows us to return to the learning of computer skills, the common ground of digital literacy in many educational syllabuses, not just for the particular nature of the computerised applications involved (nor, at this time, for the practice associated with them such as learning to produce written documents in a given context), but for a roundabout route that sees teaching practice as a more abstract concern. The current specific properties of the digital technologies are: the digitality, interactivity, hypertextuality, multimediality, virtuality and the connectivity or functioning on the network.

These properties are more like points along a continuum than diametrically opposed concepts - with exceptions such as digitality. But taken together, they enable us to characterise the new media, at least to differentiate them one from another. From the perspective of digital literacies, their interest lies in analysing and understanding them, in order to be able to draw up an educational syllabus that seeks not only the learning of certain computer skills but also the capacity to use these properties in any context that permits their use.

3.3. An example: multimediality, metamediality, multimodality

Arguably the most talked about of these properties are the multimedia applications, which, to a large extent, are the result of the process of digitalisation and the metamedial nature of computers. Yet understanding the technological principles of their origin does not in itself allow us to understand their educational consequences or implications for new literate practices. The latter constitute an enormous set of multimedia options (both in teaching and in art or in the information media), which have gradually grown more and more invisible, to the point that today it is virtually impossible to distinguish or to come across "monomedial" messages, that is messages comprising solely text, except in specific cases - SMS messages, text-only electronic mail, etcetera, and with the way of communicating having changed, they have come to constitute one of the nuclei of the new forms of electronic reading and writing. Appraisals in education are complex, as their value depends more heavily on the structure of multimedia messages (Rodríguez Illera, 2004) than on the multimedia qualities themselves, not to mention how much of a distraction they might be by focusing all the attention on aspects linked solely to the form of the message.

However, independently of this appraisal, their social impact as new literate forms is apparent and occupies a place of pre-eminence. Beyond their instructional utility, which we believe they have, the use of multimedia has established itself as a usual educational practice, for example in the guise of CD-ROMS, visits to web pages, and the construction of such pages. The internal vision of multimedia is consubstantial with the experience of surfing the net or using a computer: the "native" users do not expect it to be otherwise, they assume that virtually every graphic element on a page will unchain an action: opening another page, showing an animated image, magnifying an image or emitting a sound. In other words, they take it for granted that the pages and screens are created with digitalised media, that the computer integrates them in a unified experience, and that the author of the web has decided on the main form that the communication will take, selecting the most appropriate medium or media.

We should think for a minute what the reading of a multimedia screen actually means: 1) that the media are digitalised (digitality); 2) that the computer and its screen, as a new support for writing, are capable of integrating the media (metamediality); 3) that the author, and in some cases the reader given his or her active condition, is able to choose the principal mode of meaning, as well as those that are secondary but integrated within the global meaning (multimodality)[iii]. In addition to these characteristics of multimedia, we need to add the general processes of production-design and circulation-consumption, which

determine the position from which the multimedia content is generated or received, that is the types of practice in which the multimedia messages are inserted. Moreover, these characteristics are related, when they take shape in a particular design, with other digital technologies: their interactive capacities, the degree of hypertextuality, etcetera. In other words, reading/writing on screen means, or can mean in most cases, a different experience to that of traditional reading or writing because of its greater complexity and richness in the media types that are possible (Leu & Kinzer 2000; Rodríguez Illera, 2003). Logically, the capacities to write and read on these new screens are also different to those of the traditional modes.

Multimediality means dealing with the whole message that is composed on the screen in a fundamentally graphic way, that is as an aggregate of media that should be placed in a spatial assemblage (and on occasions, temporal), and whose meaning does not depend entirely on any one medium but rather on all. Unlike other media that have constructed their interpretative codes gradually over many decades and even centuries (such as newspapers, photography and the cinema), multimedia is an aggregate of all of them which, when taken together, is not evident in its functions of re-mediation (Bolter & Grusin, 2000) or transduction across media, as it generates new meanings that could barely be imagined before, and which are not always directly interpretable. We are not only considering web pages, which have adopted an almost standardised interface, for reasons of ergonomics and usability, incorporating minimum principles of coherence - such as the so-called *rollovers*, and the highlighting of links using underlining or coloured text, as much as more complex multimedia applications that explore the meaning capacity of the media and the interface in non-conventional forms (Reiser & Zapp, eds, 2002). Unfortunately, as Plowan (1994) reminds us, we do not have an "institutionalised mode of representation" for multimedia representations in the way that cinema does.

The graphic composition of messages, the integration of various media on one flat screen, which has differentiated meaning modalities, and gateways to hypertextual and interactive forms, is a research problem and not solely one of literacy. Attempts at rationalising this step from page to screen, from the point of view of literacies (Snyder, ed, 1998, 2002; Taylor & Ward, eds, 1998), show great variation and divergence, and the practical forms that this new writing adopts (building web pages, designing screens for interactive applications, the making of simple hypertextual documents), nearly always mean a balance between the experience of the instructors, certain theoretical guidelines, and the practical advice of the *bricoleur*.

The fact that the multimedia "montage" (using the word "montage" to emphasise the constructed nature of what we see and hear on the screen, similar in this respect to the cinema but also newspapers, and which has its own history as April, 2003 has demonstrated) is not standardised, or rather perhaps that it cannot be standardised in the same way as has occurred with other media, because of the complexity and the characteristics described above, does not mean that there is no debate as to how it might be achieved. Completely absent from user manuals, which appear as practical guidelines that are then transmitted in advanced courses of digital literacy, the debate is taking place in studies of ergonomics and the "human interface" and is some way yet from being settled. In fact, the multimedia composition differs completely according to the theoretical perspective

(or even poetic) that we adopt, albeit tacitly as the underlying communicative problem is not usually thought of in such terms but rather as something direct, related to the *interface*, similar in this regard to communicative conceptions in which the screen is merely a necessary mediation between a supposed emitter and a supposed receiver. For example, well-known studies of *usability*, centred above all on web sites and web pages but practically absent from the multimedia field, try to build a rudimentary grammar of spatial montage and of the underlying informational categories, by proposing something similar to an implicit, model reader (Eco, 1979), as a guarantee or criticism of the organisational and interactive validity of the solutions that the designer has adopted. In other words, they adopt, in general, a rhetorical perspective but one that is based on a simplified model of communication.

The idea of the multimedia montage dates from much further back than digital media, and of course in much simpler forms that were not at all interactive, but which have been gradually built over centuries though always with educational purposes in mind, first for the composition of texts and graphics in the same space, organising this and giving it a reading order, recomposing even the value of the signs and of the media itself, of its interrelations, and creating a new way of meaning. Later using the audiovisual media, throughout the XVIII and XIX centuries, until the appearance of the present-day media, its gradual institutionalisation (Burch) and standardisation, and today its major digital transformation. For us, this prior process is something that is now accepted, it is an asset inherited as cultural capital in the school, the family, through cinema and television, as a fundamental form of modernity, and in which we have been made literate – at least in our capacity as readers. A large part of the simple multimedia montage has been culturally incorporated as a specific form of "intuitive knowledge" (di Sessa, 2000), at least in its canonic mode of reception, though not in its expressive or productive capacity.

Discussion

Digital literacies are one of the greatest challenges facing education today: in an increasingly digitalised world, the very idea of being competent in the new literate practices is subject, on the one hand, to the tension that exists between the new media and new ways of meaning and communicating, and, on the other, to educational practices that all too often were conceived for a society that has since undergone profound changes.

There exists, it almost goes without saying, the pedagogical doubt as to how to teach the basics required for moving about at ease in a world that every day is incorporating more and more virtual learning environments and multimedia products, mobile telephones capable of sending text messages, with multimedia applications and Internet connections, as well as a set of technologies undergoing constant evolution and growth. This basic digital literacy is usually learnt among friends, at home, in part at school or else the user is self-taught.

But there exists a more complex problem, one which this paper has sought to outline, a problem related to the theoretical frameworks from which literacy, and in particular digital literacy, are contemplated. Rethinking literacy in terms of literate practices rather than

seeing it solely as learning to read and write, seeing it as a process and not only as a state, and emphasising its multiple character and, above all, its social dimension, are the main changes that have taken place. Digital literacy means, moreover, a new medium, a variety of media, which underlie the practices and which transform them in a hitherto unknown way, in a global, intercommunicated context which is also a historical novelty. And this is not only changing our way of relating with technology but it is influencing the way we relate with society itself, and, therefore, transforming our own identities and ways of learning.

Alongside these findings, we are having to deal, however, with educational questions and problems that reflect these social changes. Yet these are also specific, and this paper has sought to see some of these matters as research questions rather than simply as an applied programme of didactic action.

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[i] Digital literacy understood as a practice also contains the idea of literate events (Barton, 1994), in other words, the specific, observable activities in which linguistic activity is mediated by the written culture. To understand digital literacy as a practice, or as a situated practice (Barton & Hamilton, eds, 1999) means viewing it as a process of appropriation by the subjects, and as a specific reaction to the context in which it takes place, thus linking it to focuses on cognition and situated learning that have had such an influence on the theories of learning (Lave, 1989).

[ii] The critical axis of literacy responds more closely to an educational conception than to a description of literate practices and is not specific to them. Others authors, such as di Sessa (2000), do not include it explicitly, although it is clearly present in the discussion that he undertakes of the forms of learning and of literacy. The previously mentioned New London Group (2000), by contrast, takes this as their centre of educational reflection and criticism, as does Warschauer (1999) in his consideration of the political and power component in all conceptions of literacy. An historical perspective, such as that adopted by Resnick & Resnick (1977), shows us how the social criteria for defining literacy have evolved to become increasingly more complex. Given the impossibility, for reasons of space, of analysing the different axes, this paper chooses to focus on just one of them.

[iii] Kress & van Leeuwen (2001) have developed a theory concerning multimodality which aspires to be the basis of the analysis of both learning and literacy. Subsequently developed by Kress (2003), it places at the centre of thinking the multimodal nature (various media expressed as differentiated modes of communication) of communication, expressing the relative theoretical importance of verbal language. This discussion dates back to earlier periods, especially to the semiotics of the 60s, and adds no new elements, but the emphasis in

considering other modes of communication and meaning appears today even more relevant with the development of new media – although the meaning and the links between the verbal language and other modes continues to be a problem that Kress barely touches upon, and whose importance for a conception of written practices (digital or otherwise) is more than clear. It seems that a multimodal theoretical shift is not possible, but rather a conception that integrates the different communicative modalities while bearing in mind the uniquely special place that the verbal language, be it written or spoken, has in relation to the other semiotic systems.