

Reading as a Problem Solving Task and Digital School

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Abstract

The renewed school idea, understood as an open learning space that allows students to develop life skills, imposes an overview of reading in a new epistemological and cultural dimension. Within the European educational systems, among the skills considered essential, a prominent role is occupied by the reading comprehension and mastering the language. In fact, reading literacy is a cognitive life-skill that structures thought and reasoning (Olson, 1994) and is perhaps the most precious of the goals to achieve in today's school. As well, the use of technologies, digitalization, now structural components of the curriculum, have put exactly the reading into the center of the learning experience. The general aim of this work is to investigate, through a bibliographic detailed study, the relationship that there is between digital reading and textual comprehension skills. Methodologically we will proceed with the systematic review, with particular attention to the sources to identify and evaluate the relation between the reading and the digital support. Digital devices can favor active, reflexive, conscious reading, as they provide dynamic reading functions that support the adjustment of the analysis processes. The idea is to value these references, emphasizing the essential role of reading comprehension. Resuming the cognitivist matrix, reading can be seen as a problem solving task where the reader is called to use the information contained in the text, using his declarative and procedural knowledge, to construct more accurate hypothesis about the meaning of the text. The perspective considered in this work identifies the "know how to read" as the tool to become a more experienced navigator of contemporary society with the ability to discern, interpret, and propose.

Keywords: reading literacy; reading comprehension; problem solving; digital reading; life-skill.

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Introduction

The reading literacy is a distinctive element for social inclusion or exclusion of human being. The possession of this ability is a main aspect for the development of a real democratic conscience and for a significant participation of every citizen towards the debate of political life as well as the transformation and the renewal of the contemporary knowledge society. The acquisition of skills as: reading, understanding and interpretation of texts and of various kinds is an essential objective that every student has to acquire at the end of compulsory education (D.M. 139, 2007). The reading literacy is the training goal par excellence, it is a fundamental learning for school and extra-school life, it is essential for the knowledge in all subject areas. Actually, without a sufficient experience in this area, none can attempt to solve problems of mathematics, physics, or deal with aspects of geo-historical or political relevance (Bottani, 2011).

It is not correct to suppose that learning to read is similar to learning to walk, or to distinguish, visually, the distance and depth in the space around us; really the learning of reading is much more similar to the acquisition of math or chess game. Although learning to speak and to read is understood both as forms of linguistic development in the generic sense, it does not mean that they are equivalent forms of development. Calvani affirms (2018): “it is wrong to think that learning to read is a natural aspect of linguistic development, as the learning to speak. It is quite obvious that oral language is biologically primary in the human being, but the reading and writing literacy obviously are not” (p.16). According to Dahene (2009) the right technique to teach reading is the syllabic method, then the correspondence of a phoneme to a specific grapheme, proceeding from the simple to the complex. From learning to read to the development of reading competence, can be traced three fundamental phases which, partly, overlap. In the first phase of learning the student’s efforts are directed to the decoding operation of the graphic signs, this phase ends with the achievement of automatism. This is the moment of instrumental aspect of reading skill, it represents basic and necessary condition for every type of reading. In the second phase, the student develops cognitive and metacognitive skills involved in the full comprehension of a text and in its literal meaning, to the point of acquiring the ability to immerse oneself in reading for personal interest and pleasure. Finally, in the third phase, the student learns to distance himself from the text in order to examine it critically: the reading literacy must lead the reader to develop a critical sense towards what he has read. In this phase the reader is able to differentiate his point of view from that of the author, to analyze the text, to evaluate it in content and form, to make comparisons between different points of view. Moreover, it is important to remember that for a long time the school has been interested in new technologies as tools to improve the learning experience of students. As a consequence, reading and reading mode deal with profound changes.

Reading and understanding

Nowadays we speak of reading, meaning it as a dynamic process that develops throughout life and which does not take place only in formal learning contexts, but also in non-formal and informal contexts (OECD, 2009).

Reading literacy is a transversal cognitive competence that structures thinking and reasoning (Olson, 1994), it is perhaps the most precious achievement that schools intends to pursue, in fact scholastic institutions have accepted to respond to the challenge of acquiring competence (Spencer & Spencer, 1993; Perrenoud, 1997; Pellerrey, 2004).

The school of competence is a school that has the duty to train competent readers if it wants to act as a formative place oriented to the development of democratic participation, in order to favor the improvement of an equitable social growth.

The original definition of reading literacy, formulated starting from the studies of the International Association for the Evaluation of Educational Achievement (IEA-Reading Literacy Study, 1992) and of the Organization for Economic Co-operation and Development (OECD-International Adult Literacy Survey, 1994, 1997, 1998) was integrated in 2009 with motivational and metacognitive aspects.

Currently reading literacy means “to understand and to use written texts, reflect on them and engage in their reading in order to achieve their goals, to develop their knowledge and their potential and to be an active part of society” (OECD, 2009, p.23).

The definitions of reading and literacy in reading have changed over time, they have adapted to changes of society, economy and culture. The concept of learning and, in particular, lifelong learning, have expanded both the definition of literacy in reading and its components. Literacy is no longer considered a skill that is acquired only in childhood, during the first years of school, but rather as a set of knowledge, skills and strategies in continuous evolution, which individuals develop in the course of life, through the interactions with peers and with the larger groups they are part of.

This definition intends to overcome the notion of literacy in reading as mere decoding and literal understanding in favor of an interpretation that implies comprehension, use and reflection on written information for a variety of different purposes. This description considers the active and interactive role played by the reader in deriving meaning from the written text.

The definition also contemplates the plurality of situations in which literacy in reading plays a role in the life of a young person: from the private sphere to the public sphere, from school to work, from the sphere of active citizenship to learning throughout the life.

According to this new vision, literacy permits to realize one's own individual aspirations, whether these are well-defined aspirations, such as obtaining a diploma or obtaining a job, or whether they are less immediate objectives as to improve and to enhance the personal life of each one.

Literacy also provides the reader with the linguistic tools that modern society - with its institutions, its widespread bureaucracy and its complex legal systems - requires with ever increasing insistence.

Readers, while attempting to understand what they read and use, react to texts that are confronted in different ways.

But what are exactly comprehension and awareness in the field of reading?

Mialaret (1996), maintains that: *“to be able to read is to be able to transform a written message into a sound message following precise rules; it is to understand the content of the written message; it is being able to judge it”* (page19). To understand significantly, the reader must have an active role, decode what he reads and to plan his cognitive process, through cognitive and metacognitive strategies (Cornoldi & Colpo, 1981). Among the cognitive strategies we can find: the ability to know how to focus the words in bold, the use of dictionary to understand the meaning of the unknown terms, to take notes, to make use of the context, to synthesize, to underline, etc. For metacognitive strategies, instead, we mean the reader's ability to perceive the need for additional information and to reflect on what has been read and understood (Brown, Bransford, Ferrara & Campione, 1983), that is, to realize and to implement all those useful actions to monitor and plan the reading process. More specifically: different reading modes in relation to the purpose, slow reading, read the text several times carefully, in general put oneself in a condition of active and critical reflection during the act of reading (Morini, 2017).

In an effort to develop authentic reading situations, PISA (Program for International Student Assessment) notes the following five aspects associated with a full understanding of a text. Students must demonstrate their level of competence for each of the following aspects: identifying information; understand the general meaning of the text; develop an interpretation; reflect on the content of the text and evaluate it; reflect on the form of the text and evaluate it.

Full understanding of a text implies the activation of all these processes. It is expected that all readers, regardless of their overall reading capacity, are able to demonstrate a certain level of competence in each of these aspects.

Although the five aspects are inter-related (as they are based on a common core of skills), a good result in one of them is not necessarily related to success in others.

Some believe that these aspects are part of each reader's repertoire at every level of its development, rather than constituting a hierarchical set of skills that develop sequentially.

In order to evaluate the skills of the reader with respect to the ability to read and understand a text, it is appropriate to define, in a clear manner, the evaluation methods, the methodologies and the tools that will be used, so as to guarantee the validity and reliability of the survey.

Lucisano (1989) argues that: *“the measurements we can make have many limitations, but the possibility of defining skill models, identifying strengths and weaknesses, and comparing the student's profit with the class and national standards, constitute an indispensable reference both for research and for didactic intervention”* (page 21).

Reading and digitization

The reading competence, according to the Recommendation of the European Council of 22 May 2018 on the key competences for lifelong learning, falls within the first of the eight key competences outlined in the reference framework, that is in functional alphabetic competence. The latter, in fact, distinguishes, among the different aspects, the knowledge of reading and writing and a good understanding of the written information and therefore presupposes the knowledge of the vocabulary, the functional grammar and the functions of the language. This involves the knowledge of main types of verbal interaction, of a series of literary and non-literary texts, of main characteristics of different styles and registers of the language.

However, reading and its different modalities have changed and have evolved profoundly along with the progress of society, the pervasive diffusion of technology and the resulting cultural changes. Changes in the distribution and use of the media have also produced consequences on the cognitive level.

To define, today, what it means to be able to read and what presupposes to be a competent reader remains a very complex task, but it is clear that this concept can no longer disregard the comprehension and use of online texts and how an insufficient level of these skills becomes an element of marginalization. social, as limiting the effective participation (European Commission, 2012a, Jenkins, 2010; OECD, 2011). With the technological development are generated the new forms of textuality characterized by multimedia, that is by the integration of different codes present on the same support and, from hypertext, that is the reversal of the linear order in favor of more free and flexible reading paths, in which the reader can choose which order to follow for the use of the contents organized in blocks of text (Notti, Calenda, 2016). Hypertextuality, due to its natural openness, is based on the centrality of the role of the user and on the reticular structure of the text. For this reason, it is possible to talk about interactivity, the reader is free to choose routes to activate (Livolsi, 2011).

The definition of reading literacy, mentioned earlier, refers precisely to the interactive nature of the process, since when readers engage in reading a text, they do so by drawing on their own experiences and way of thinking, affective aspects and behavior, motivation, commitment to reading, the pleasure of reading, interest and control of strategies in relation to reading purposes (Cataldo et al., 2012). The reading activity connected to a digital text requires the reader the ability to construct personal paths much more than is required in the case of printed texts.

The ability to decipher is not, therefore, a skill that is acquired once and for all; it is a process that never ends because, once learned, it is self-reinforcing and modifying with the exercise and adapts to the various requests: it contemplates the development of other capacities such as inference and integration that they imply the existence of complex perceptual complex automatisms.

Online reading can solicit a higher cognitive load. Digital texts require to search the information distributed between a heterogeneity of links and in specific textual situations of the electronic medium: the understanding of a list of information provided by search engines or the contents published in a blog, for example, unequivocally identify a typical online reading only.

To retrieve the information useful are required to assess the relevance of the materials and to understand the hierarchical structure of the site. Integration, defined as the completion and comparison of information from various textual genres, invites similar processes, whatever the medium.

However, because the digital medium makes it so easy to cross-talk between various texts, readers are much more likely to find themselves crossing different text types in a single reading episode.

Consequently, an ability to reorder information that requires sophisticated reading skills is required.

The open nature of online publication also requires the ability to evaluate texts. Collecting information on the Internet requires the skimming and scanning of a large amount of material and the immediate assessment of its credibility.

During access and use of information on the web interact in a complex way unique operations, such as those related to navigation, others in some respects similar to those typically associated with the reading of paper and others, however, specific to the new medium, in addition to involving the processes involved in learning from the written text (Carioli, 2013).

Conclusion

At school students learn the instrumentality of reading procedure and activate numerous cognitive processes necessary for understanding. Therefore, actions that school must necessarily promote, through educational mediation, concern the improvement of comprehension processes of digital natives, which instead have in their experience mainly an instrumental reading, mostly directed at communication only, and their approach with the written text is mostly casual, involuntary, unaware. To stimulate the student to pass from a mechanical reader, who only searches explicit content, to a reader who searches for meanings in what he reads, didactic mediation should be directed towards the synthesis between two elements that are the text and the act of comprehension (Lumbelli, 2009). The main objective, for the school, is to make sure that the reader is able to search for a meaning that passes from understanding to interpretation; only later it will be possible to find emotions and evasions in reading. Reading process can be seen as a problem solving task, in which the reader is called to use the information contained in the text, using his own declarative and procedural knowledge, to construct more accurate hypotheses on the meaning of the text (De Beni, Pazzaglia, 1995). In didactic practice, therefore, it is necessary to be aware that, by approaching digital reading, modifying the medium and modality with which the message is structured, complicate understanding and that, to become competent online readers, it is not enough to transfer the skills learned in reading of printed texts (Carioli, 2013, p.43).

The student must become aware that, by improving his ability to understand and to interpret, he will be a more experienced “navigator” able to move in the sea of contemporary society with his ability to discern, to interpret and to propose.

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