When "Knowing How to Read Texts" Means Understanding and Inferring Meanings

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Abstract. The essay aims to explore the nature of reading as a multidimensional and dynamic competence and to identify the teaching strategies necessary to put students to read successfully. His main purpose is to focus on relationships between text comprehension, skills and inferential processes and to examine the positive association between understanding reading, morphological awareness and construction of meanings, also in reference the ability to make inferences. The paper proposes a vision of reading comprehension as a dynamic process of decoding and linguistic understanding, which suggests how the relationship between decoding and linguistic understanding should be integrative rather than additional. The interconnection between the multiple linguistic-cognitive processes involved in reading implies the use of interpretative approaches belonging to different disciplinary areas. For this reason, this contribution goes precisely in the direction to look at the phenomenon of reading by combining the tools of linguistics, cognitive psychology and pedagogy, indispensable to reveal its features.

Keywords: reading, comprehension, morphological awareness, inference, reading skills

1. Introduction

All national and international studies over the last twenty years have supported the importance of guaranteeing all sections of the population (children, young people and adults) have adequate language skills, writing and reading skills and qualified education to ensure positive learning and literacy experiences. The latter is understood by the OECD (2013 59) as the ability to understand, evaluate, use and interact with written texts in order to participate

in society, to achieve its goals and to develop its knowledge and potential". Since the mid-seventies, Italy has participated in comparative investigations of the *International Association for the Evaluation of Educational Achievement* (IEA), which, in later stages, gave rise to explorations such as the *Reading Literacy Study* (1992; Ferreri & Lucisano 1996). From another point of view the International Adult Literacy Survey (IALS 1994; 1997; 1998) emphasized the importance of reading skills for active participation in society and stressed that, among the alphabetic skills (Lucisano 1994), those of reading are indispensable for the interconnection with the multiple linguistic-cognitive processes involved (Britt, Goldman, & Rouet 2013; Kamil et al. 2000; Perfetti 2007; Rayner & Reichle 2010) and with understanding of speech (Zwaan & Singer 2003) etc.

The IALS Survey has for the first time detected the ability to produce written information, while the Adult Literacy and Life Skills (ALL) has extended the scope of observation of skills to the use of formalized languages. Compared to the latter, the International Program for Assessment of Adult Competencies (PIAAC) - *Survey of Adult Skills* has been designed to be connected, from a psychometric point of view, with IALS since the pilot investigation to verify that all three detections (IALS, ALL and PIAAC), produced results expressed on the same scale of measurement of scores for comparability problems (ISFOL 2014).

PIAAC (2013) collected a series of representative samples of the resident population aged between 16 and 64 in each participating country, showing how too many adults are not yet able to acquire basic reading skills (reading components).

This negatively affects their individual life and their economic and social well-being (OECD 2013).

It is also noted that the reading skills of Italian adults are among the lowest in the OECD countries and their performances seem to vary with reference to the socio-demographic characteristics, even if these differences remain almost similar to those found on average in the participating countries at the studio.

In detail, the report highlights how higher levels of education and literacy are associated with higher chances of individuals to participate in the job market and be employed, but also to obtain higher wages.

Equally unexciting results are also noted in the surveys on young fifteen-year-olds, whose literacy in reading was the main domain assessed during the PISA investigation cycles (PISA 2000), revisited over time with the development of new tools, up to the seventh PISA cycle (2018).

The PISA framework for assessing students' reading ability towards the end of compulsory school focuses on reading skills which include research, selection, interpretation, integration and evaluation of information ranging from the whole range of texts associated with situations that extend beyond the classroom.

The literacy framework for reading PISA 2018 follows some aspects of the 2009 and 2015 surveys and incorporates constructs, such as fluent reading, literal interpretation, integration between sentences, extraction of central themes and inferences, which are skills criticism for processing complex or multiple texts for specific purposes. It highlights how the problem is for students not to be able to perform higher-level text processing functions.

In subsequent phases and from different points of view, the development of comparative surveys between the years 1997-2018, which assessed the results and performances regarding the literacy of both students at school and the adult population, marks an important step for the description of the changes that have affected the European population, especially in the last two decades, also following the increasingly massive introduction of digital texts.

These occasions represented for Italy the opportunity to also reach unedited population shares, such as immigrants, with the aim of studying key skills (literacy, numeracy and problem solving), for life (life skills), social and multiply competencies. However, these investigations have seen language and reading skills always at the centre of the debate. This demonstrates how this kind of skills play an important role in the daily lives of individuals, influencing their

health, political awareness, participation in social activities and a sense of trust in others.

2. Decoding and understanding

Poor reading skills have seen the gap between poor and excellent readers grow progressively, which has been marked over time, highlighting the need to change the approach to the training of alphabetic skills.

Learning to read is a complex process. Cognitive and linguistic factors are, as is known, one of the most important elements in the acquisition of reading (Verhoeven, Reitsma, & Siegel 2011).

If it is true then that reading and writing are complex facts, it is equally true that they are essential skills in the life of each individual and, which, when they are lacking or absent, create problems of management of existence. They remain basic skills in learning all disciplines and their mastery is an essential condition for good social and professional integration. In fact, there are many studies that continue to emphasize the loss of these kinds of competence, a loss that is taking on ever more unprecedented characters and inventing new forms of illiteracy, such as the return and functional one (Nuzzaci 2019).

Many processes, such as those of word recognition and speech decoding and language understanding (such as spoken vocabulary, semantic and syntactic processes), are crucial to making an individual an expert reader (Stuart, Stainthorp, & Snowling 2008).

In the simple vision of reading, understanding can be seen as the product of word decoding and oral understanding (Hoover & Gough 1990). There are various models that describe the reading process, but, due to space limitations, they cannot be discussed in depth here (bottom-up models, which describe lower-order reading processes - word recognition; top models-down, which describe higher-order reading processes - text comprehension -; interactive

models, which are a combination of bottom-up and top-down models) (Rayner et al. 2012; Verhoeven, Reitsma, & Siegel 2011).

Studies indicate that reading comprehension depends on the reader's ability to decode words accurately, smoothly and effortlessly (LaBerge & Samuels 1974) but, at the same time, it cannot be considered a concluded learning process when the child shows to be able to read accurately and correctly aloud, since this operation is not enough to try to understand if he can infer the meaning of what he has read. The ability to understand a text is generally based above all on the mastery of decoding (García & Cain 2014), in terms of accuracy and speed, and writing, in terms of spelling and punctuation. These are skills that allow the individual to connect the letters to the sounds and meanings of the corresponding speech, which involve interdependent operations and processes of a different nature not attributable to a single processor.

Understanding texts is a complex cognitive activity that requires mastery of the linguistic code, but also the implementation of general cognitive processes, such as the activation of knowledge in memory, the ability to establish inferences and to mobilize attentional processes.

With regard to the first (*decoding*), it is necessary to remember how it is configured as a kind of skill that allows, starting from the use of precise rules, to translate the grapheme into the corresponding phoneme.

The second *(lexical coding*) intervenes when the stimulus has already been decoded. Thus, the meaning is sought by examining all the possible meanings of the word until the correct one is identified.

This can also occur for direct access, speeding up the process, without going through all the meanings, even if this activation mechanism of one network is considered simultaneous with the deactivation of another, as a consequence derived from the attentional focus determined by the context.

A further step in this process is given by automation, which intervenes in the recognition of words, frees cognitive resources for

understanding and, in processes underway in the calculation and processing of meanings, increases the reader's ability to manipulate the text.

The semantic level, on the other hand, goes beyond the meaning of the single word to search for the meaning of the entire text, which is obtained through a process of continuous construction.

Understanding reading can also be defined as a process by which the reader constructs the meaning of the text by combining his previous knowledge with the information contained in the text (Samuels 2002; 1979; Samuels, Schermer, & Reinking 1992).

If the reader was able, after reading, to identify the meaning of what was read, but the latter was not consistent with the written text, this could lead him to re-read it and find a new meaning.

The syntactic level concerns the understanding of the relationships between the constituent elements of simple and complex sentences and allows you to segment them in their grammatical constituents, as well as establish links that bind them and trace the order of words, the grammatical class, the function words, the prefixes and suffixes and punctuation marks.

Considering the relationship between words, sentences and successive periods, the textual level instead regards the relationships between the various parts of the text with reference to the elements of cohesion and the temporal sequences, while the pragmatic-communicative one is linked to the more general ability to understand the objective pursued by the author of the text (implicitly defined in the content) and the context. This is to build a coherent and meaningful representation of the content, integrating new information with old one and solve, update or modify the problems concerning the representation of the text in the event that information enters into contradiction.

At these levels, reading, therefore, presents itself as a dynamic process whose goal is the construction of a representation (sometimes called situation model), which must respect what the author of the text has actually written, requiring the reader to use his conceptual and linguistic knowledge to interpret its meaning.

In this sense, understanding the text as a dynamic "situation model" (Kintsch 1998) is based on two processes: the construction of representation in memory of the literal meaning of the text and the integration of the contents of the text with one's previous knowledge through mapping and inference processes (McNamara & Magliano 2009).

This character requires that the construction of understanding takes place continuously, through an uninterrupted development of interpretation, as new information is introduced (words, sentences, etc.).

In this sense, understanding the text - as a constructive, active and interrogative activity - requires the integration of new information, contained in the text, within the knowledge structures possessed by the reader (De Beni & Pazzaglia 1995; De Beni, Cisotto, & Carretti 2001) and is characterized as a cognitive activity that is expressed in the interrelation between several variables.

However, the simplest interpretative approach to reading by literature is that which provides an organizational framework to understand how the corresponding skills and related to the different components that make up it contribute to supporting this kind of skills (Francis et al. 2005; 2006).

This approach promotes a vision that sees mainly interrelated, but separable, two components, the decoding and the linguistic understanding, which allow in a decisive and "multiplicative" way to come to understand a text.

Decoding, in particular, asserts itself as the ability to quickly access a mental representation of the text, relying on phonetic decoding and automatic recognition of words, while linguistic understanding, which constitutes lexical information, represents meaning and syntax (knowledge of vocabulary and syntax) and can also be assessed in oral comprehension (Kendeou et al. 2009b), also because reading comprehension is intimately linked to oral understanding.

Research in L2 shows how decoding and linguistic comprehension skills explain a substantial difference in the

development of reading comprehension itself and that, consistent with the studies conducted on monolingual speakers, for those who do not have reading difficulties, decoding skills they seem to become less predictive of understanding than linguistic understanding with advancing age and school level.

There is also convincing evidence that the contribution that decoding and linguistic understanding gives to reading comprehension may differ among those who show a poor understanding of texts (Lervåg & Aukrust 2010), although this result is not always consistent with that obtained through some longitudinal studies (Johnston & Kirby 2006; Keenan, Betjemann, & Olson 2008). Although therefore there is evidence that indicates how the understanding of the language plays a crucial role in the understanding of reading, it is not clear if the components of linguistic understanding (such as the breadth and depth of the vocabulary, syntax, morphology and understanding of listening) must be considered as interchangeable proxies of a general construction of understanding.

Studies of young English monolinguals have shown that, once inserted in the model simultaneously, the listening comprehension and vocabulary measured in kindergarten act as the only predictors of reading comprehension two years later (Kendeou et al. 2009b). It is unclear, however, whether the components of language comprehension unambiguously preach the reading comprehension of older students, for example, and whether they increase in higher students.

3. The relationship between reading comprehension and morphological awareness

Although there is a widely shared view that there is a strong relationship between decoding and reading comprehension, substantial differences have been found in the percentage of variance explained in reading comprehension by different decoding

measures (Cutting & Scarborough 2006; Keenan, Betjemann, & Olson 2008), even when, for some researchers, the latter's contribution to reading comprehension appears negligible, with R2 values in the .0001 or .0005 region (Berninger et al. 2006).

Other research suggests that decoding ability more or less completely preaches reading comprehension performance, with R2 values in the range of .90 (Katzir et al. 2006). Decoding accuracy is also often used to identify texts of different levels that have been appropriately chosen or selected for the assessment of reading ability at different levels of competence (Mesmer 2007).

At the same time, however, research has also shown how the nature of predictors and reading comprehension changes over time. Specifically, it is the longitudinal studies conducted on monolingual children that have supported the hypothesis that reading performance in early school years preaches a considerable amount of variance in reading comprehension in later life.

However, it is clear that - over the years - as reading skills become more consolidated, language skills become more reliable predictors of understanding (Catts et al. 1999; Cutting & Scarborough 2006; Francis et al. 2005; Storch & Whitehurst 2002).

This general observation is also supported by studies conducted on L2 (Geva & Farnia 2012; Verhoeven & van Leeuwe 2012).

Kern (1989) argues in this regard that, unlike native speakers, second language individuals are less likely to automatically acquire word recognition and need to pay attention to morphology.

Kuo and Anderson (2006) put forward the idea that L2 students, who have more solid morphological knowledge, including knowledge of word formation through the combination of prefixes, suffixes and roots, have a more enriched vocabulary and enjoy a better understanding of reading. According to Deacon and Kirby (2004), there is in fact a correlation between morphological awareness and reading comprehension, as revealed by a four-year longitudinal study conducted by them (Deacon & Kirby 2004).

In the same direction, Maag (2007) underlines how explicit knowledge of morphological awareness contributes to

strengthening the understanding of texts and how the best readers of L1 and those with wider ranges of vocabulary have overall a greater metalinguistic awareness than less able readers.

Still, other studies (Kieffer & Lesaux 2008), examining the relationship between morphological awareness and understanding of the English language between fourth and fifth grade English and Spanish-speaking students, indicate that morphological awareness is a significant predictive factor in understanding reading, thus supporting the inclusion of derivational morphology in the understanding of the English language by Spanish-speaking students. Siegel (2008), then, starting from the examination of the relationship between morphological awareness and spelling and reading comprehension in children with dyslexia, typical readers and young English-speaking students, underlines the contributory role of derivational morphology on reading and spelling skills of students, noting that those with reading difficulties obtain lower scores than "normal" readers, precisely in reference to the measure of morphological awareness (Ramírez et al. 2010).

This confirms the role assumed by morphological awareness, as the ability to reflect and manipulate small units of meaning, and how it contributes to the decoding, recognition of words and understanding of reading, performing a vital function in the acquisition of literacy. We think, in this sense, of when young readers have to overcome some difficulties in learning to read about the internalization of unknown and very long words. As a necessity of teaching and learning, morphological awareness, therefore, becomes a vital dimension that contributes to training the "competent reader" and helping teachers to face the difficulties of those who have reading problems and who need specific interventions, especially in the early years of primary school. These are the moments, more than others, in which it is necessary to support the learning process to reach a competent reading, error-free and linked to a correct ability to decode, recognize words and understand reading.

For this reason, a large part of the efforts carried out by those

who play an educational role must go towards building, encouraging use and implementing these kinds of skills in the context of education. The degree of penetrability of a text by more or less expert readers also depends on the adequacy of a text with respect to a specific reader. The reflection on these aspects must be both linguistic and cognitive, in the twofold sense of identifying and recognizing the linguistic peculiarities that each text presents and of making hypotheses on the possible paths of understanding. This translates for teachers into the need to study, analyse and filter texts to be able to structure teaching/learning sequences aimed at activating comprehension processes. This function should be widely increased in teachers initial and continuous training, to prepare them to understand pupils' differences also in terms of preferences and motivation, in order to make reading a valuable tool to make the curricular path more precious and incisive. This would offer teachers the opportunity to reflect on the importance of adopting strategies and ways adequate to increase the ability of students to read. Starting from an assumption of responsibility and strong methodological-didactic skills (Nuzzaci 2016), the teachers, in a perspective of integration and interconnection with teaching-learning processes and didactic planning (Nuzzaci, 2015), they must take charge of considering reading a key skill and transversal from the disciplinary point of view. This is because the latter can be understood as a "foundation variable" which in teaching-learning processes can be able to change the course of the didactic action.

Indeed, the school is obliged to train "literatus" by equipping students with reading skills that enable them to transform themselves into competent readers, that is, capable of providing interpretative approaches to texts, even the most complex ones. This requires cultural mediation activity that leads them to carefully and correctly interpret a text, to understand it in depth by analysing its significant, significant elements and the connections between them. Readers, in fact, while reading the text enter into relationship with all this using their experiences and ideas, as well as their own interpretive and reflective structure. The teacher has the task of

leading all students to acquire a form of individual awareness that requires, for the reception and processing of information, adequate reading tools to promote fruition of the texts focused both on adequate language education and the variety of languages of the language and on the ability to place texts in their historical context, cultural history, etc., obtaining the result of making readers express a critical opinion (attention to the work in its production context) and a personal opinion (opinion of the reader on the work) in terms of responsibility and cognitive and interpretative autonomy (Nuzzaci, Nirchi, and Luciani 2016).

4. Building and interpreting as dynamic processes of cognition

In light of the importance attributed to the ability to decode (understood in its components of accuracy and speed) and to write (concerning the orthographic component and the transcription process, *i.e.* the correct use of graphic and punctuation marks), it naturally arises to ask why is the understanding process still underestimated in a school context, which, as demonstrated, influences skills of different nature such as the understanding of specialized languages (understanding a math problem for example).

One of these neglected aspects is the inferential capacity. One wonders why the school sometimes prefers to push the student to improve their ability to read a text correctly and quickly, neglecting instead the ability to grasp its content and stimulate the inferential processes.

The term *inference* refers to information that is activated during reading, but not explicitly stated in the text and the cognitive process necessary to obtain it (Van den Broek 1994). Contrary to a merely traditional point of view, it is known that learning is not considered concluded when the child proves to be able to read accurately and accurately aloud, because the end is to infer the meaning than reading. The marked attention to this component of reading can be explained with its greater visibility and specificity, required in the

early stages of learning to read and often characterized by continuous checks by the teacher on the level of precision and speed, but which lose having regard to the estimate of the level of understanding, which sees the young reader called to put forward hypotheses of meaning and submit them, and a process of verification or textual refutation. Those who read a text are, in fact, continually called to make interpretations on the meaning to be attributed to the text in front of them.

Research on the understanding of reading, in the context of cognitive psychology, has also turned to the development of cognitive functioning models of the skilled reader, which describe the different stages of processing and connect the perception of the written trace to the recognition of words.

Due to its multifunctional nature which simultaneously involves operations and skills of various kinds, understanding the text is certainly a complex cognitive task, not attributable to a single information processor, as it depends on factors and processes that are highly interdependent between them. It is important to specify, in fact, how this understanding in children with specific difficulties, for example, becomes problematic and it is not possible to identify a single cognitive etiological factor capable of accounting for it. The data was also confirmed by the numerous empirical evidence that testifies how we can find ourselves in front of subjects who, although presenting a specific disturbance in understanding the text, actually show highly individual and peculiar profiles. This leads to an interest in a second level of analysis, in which cognitive and metacognitive skills intervene, among which the ability to make correct predictions and inferences on the content of the text and the ability to generate new information.

The latter, starting from the interpretive universe held by the student as a patrimony of codes necessary to understand its content, is intended as the ability to use adequate strategies to identify and select relevant information in the text, to exclude marginal information and, as the ability to reflect on their performance, knowledge and control processes activated, in an attempt to

monitor the progress of the acquisition process and proceed to subsequent verification. If understanding a text then also means understanding and reconstructing its "legitimate" meaning, the level of analysis inherent in the process of understanding, often underestimated, is precisely what consists in evaluating, or rather, interpreting what has been read.

This is a level that allows the reader to attribute a further, deeper and more personal meaning, which does not depend exclusively on what the text literally describes, but on how much the reader projects himself in reading, both as regards previous knowledge and as regards the conceptions of the world that it possesses. Precisely for this reason, we are faced with something that concerns the field of memorization, the processing of knowledge, as well as the ability to re-use the meanings of reading.

In essence, all proposed models agree that processing a text is an active process of construction of meanings, therefore dependent not only on the information contained in the text but also on the knowledge possessed by the reader. Literature now classic (Kintsch & Van Dijk 1978; Johnson-Laird 1983) has highlighted how the lack of interaction between the two levels of knowledge, those internal to the text and those of the reader, while leading to a superficial understanding of the text, does not allow us to grasp its profound meaning due to a lack of construction of a coherent mental representation.

In general, the models arise from specific theories and focus on specific aspects of reading comprehension, such as the recognition of words or their global nature and cognition in general. The example of the dual-route model (Coltheart, Curtis, Atkins, & Haller 1993), interested in the recognition of specific words or linguistic models (Athey 1985), deal with syntax and semantics but exclude phonology. In accordance with the dual-route model, the overall architecture of the cognitive system that processes the written words is defined, most of the time, in terms of two-way coexistence, which allow accessing the mental lexicon, *i.e.* the set of words known to the reader (*personal lexicon*).

The first way, the indirect one, uses phonological mediation, and the second one, the direct one, allows a recognition without conversions of the written word in an oral word. From a broad perspective, the connectionist models are mainly concerned with describing parallel network operations, within which some propagation systems lead to the activation of certain configurations and the inhibition of others. In the Seidenberg and McClelland (1989) model these networks involve orthographic, phonological and semantic knowledge, which interact with each other, and transformation processes that allow the transmission of excitations and inhibitions between the units of knowledge. The system is active when the reader is reading, but also when listening or thinking about a word. Recognizing a word, therefore, does not mean having found an element by drawing on a "mental dictionary" but having activated a certain configuration of knowledge (orthographic, phonological and semantic) which corresponds to a single word.

In this regard, a particularly productive way of teaching seems to be based on the acquisition by the learner of adequate learning strategies to be used in a flexible and thoughtful way (McKeown, Beck, & Blake 2009; Michalsky et al. 2009; Spiker et al. 2009). Given the importance of reading comprehension skills, the failure to use effective activation strategies, based on students' needs, becomes detrimental to future learning. Within this strand, we remember all those studies (for example Samuels, Shermer, & Reinking 1999) that highlighted the influence of memory as an important factor for the construction of lexical repertoires, which also affect students' understanding of all types of text. Studies on the effects of vocabulary development on reading comprehension have shown that students with limited knowledge of vocabulary also presented comprehension problems (even with respect to specific texts such as manuals) (Intarasombat 2002; Tanghirunwat 2003), to specialized texts and technical vocabularies.

5. Reading as a multidimensional and dynamic competence

Is there a model reader? The model reader of narrative texts, wrote Umberto Eco, is the "set of conditions of happiness, textually established, which must be satisfied for the text to be fully updated in its potential content" (Eco 1979, 62), while the model author it is the textual strategy used by the empirical author to direct the reader's cooperative activity in the desired direction. It is clear from Eco's assertion that reading is a multidimensional skill consisting of a complicated mixture of linguistic, non-linguistic and cognitive skills, ranging from low-level processing skills to high-level textual knowledge (Nassaji 2003).

Knowledge necessary for the understanding of reading is basically attributed to two types: the first is related to form and has a linguistic nature and the second one concerns substance, involving pragmatic and cultural knowledge (Eskey 1986). Among the factors that influence reading comprehension ability, one is fluidity, which is enucleated by literature as a key factor on which an improvement in learning to read at adequate levels depends (Snow, Burns, & Griffith 1998). Another factor is word recognition, which sees students who read faster have more opportunities to understand the meaning of the text as their automatic recognition of words improves. When a reader stops to decipher unfamiliar words, understanding is interrupted because the reader has to create links between ideas within a text. The knowledge and skills that students need to learn to read fluently and comprehensively are related to fluency in oral expression, previous knowledge, experiences, familiarity with the concepts associated with the written word, phonemic awareness, knowledge of the correspondence between letters and sounds, basic vocabulary, notions of semantics and syntax, metacognitive and higher-order skills, all these elements, interrelated and complementary, which reinforce each other and on which the teacher must leverage to build the teaching proposal.

Fluency in reading the text - that is, the ability to read quickly, accurately and with natural intonation - has been proposed as a

predictor of reading comprehension. The role of fluency in reading the oral text (defined as reading speed and reading prosody), together with that of decoding efficiency and understanding of language, vocabulary, syntactic ability, fluent reading and skills of understanding, can contribute to clarifying the mechanisms of understanding reading.

The literature shows how prosody and not the speed of reading the text explains variations in reading comprehension performance for the control of efficiency and understanding of the language. This result suggests that prosody, as an aspect of fluent reading of the text and natural intonation are associated with a better understanding of what is read. Here the fact that the appreciation of texts is conveyed and taught through the reading of stories, poems and works aloud is fundamental. Reading aloud can tell us something about reading comprehension (Gough & Tunmer 1986; Hoover & Gough 1990). However, it is also argued that fluent reading of the oral text or the ability to read quickly, accurately and with natural intonation contributes to the success of understanding. Two issues make it difficult to interpret the results.

Firstly, it should be remembered that studies so far have used many definitions of fluent reading. Secondly, when evaluating the latter's contribution to reading comprehension performance, other predictors (decoding and understanding of the language) intervening were not taken into consideration. Fluency in oral reading, defined as the speed of reading the text and prosody of reading the text, predicts reading comprehension performances above the predictors specified by the simple reading vision. When children start reading, their reading will not be fluent and flowing. The child must first learn to decode the written words, that is, to link the appropriate sounds to the letter combinations. Only when children become more experienced in decoding and learn to recognize words quickly, will their reading performance begin to become more fluent. The ultimate goal of the development of reading is precisely the understanding of the text. Some classical studies on literacy have shown that decoding skills constitute an

important basis for understanding reading (LaBerge & Samuels 1974; Perfetti 1985), which, together with the understanding of language (vocabulary and syntactic skills), they are the best predictors, alongside the supplementary predictor of (Kuhn & Stahl 2003).

A factor that complicates the interpretation and comparison of these results is the role played by fluent reading in children's understanding of reading, of which different definitions and assessments have been given, both in terms of automaticity (LaBerge & Samuels 1974) and verbal efficiency (Perfetti 1985). More recent evidence confirms that when word reading processes become automatic, cognitive resources become available for understanding purposes (LaBerge & Samuels 1974; Perfetti 1985). Specific studies focusing on the correlation between word count and text comprehension have shown different results. Cutting et al. (2009) showed how children with specific reading comprehension deficits behaved similarly to children in the control group when reading word lists but did get results. worse in terms of fluidity in reading. It was then shown that fluent reading of the text uniquely predicts reading comprehension, unlike word lists (Jenkins et al. 2003). If the reading speed is too slow, it becomes difficult to make connections. Therefore, the accurate recognition of words must be fast in order for there to be fluidity during reading (Stricker, Roser, & Martinez 1998), as is observed in children with specific problems of understanding the text which, however, do not have manifest deficits in any of the remaining cognitive abilities. According to other authors (Stothard & Hulme 1992; Keenan, Betjemann, & Olson 2008; Kendeou et al. 2009) among the cognitive skills more intrinsically linked to the comprehension of the text, the ability to understand the oral language plays a primary role and decoding skills.

When even one of these components is damaged, the reading process will inevitably result in a deficit. Wanting to go into the specifics of the abilities mentioned above, among the characteristics that appear most incisive is the understanding of the syntax, which

is most strongly associated with the understanding of the text (Stothard & Hulme 1992; Carretti et. al. 2002; Padovani 2006). Oakhill et al. (2003) have for example administered numerous cognitive tests to children with normal development from 7 to 9 years (intellectual functioning, decoding and reading comprehension, lexical amplitude, phonological awareness, verbal working memory, syntactic understanding, ability to make inferences), but only one of all the tests used by the authors, that of syntactic understanding, was predictive of both the comprehension of the written text and the accuracy of the reading. Confirmation of these data comes from the studies of Nation et al. (2004), also longitudinal (Nation et al. 2010), who found that children between 8 and 10 years of age with poor text comprehension skills exhibited significantly worse syntax understanding performance than peers. From these results, it is clear that the subjects show good phonological skills, with normal levels of decoding at all ages, even when there are insufficient performances in tasks that investigate the non-phonological aspects of language (especially inferential skills and morphosyntactic understanding of the sentence), already present at the time of entry to school and persistent at a later age. These data have made it possible to better understand how the early weaknesses in oral language, observed in bad readers, are not a consequence of their comprehension disorder, on the contrary, being present early, they expose them more to the risk of developing a consequent deficit of understanding. It is clear that these children demonstrate difficulty with a wide range of language skills (Hulme & Snowling 2009).

The relationship between decoding skills and text comprehension also appears somewhat problematic, as can be seen from the literature (Catts et al. 2006; Keenan, Betjemann, & Olson 2008; Kendeou et al. 2009; Nation et al. 2010), which attempts to explain how the deficit of understanding is not associated with low skills in decoding. Independence or dependence between the two variables? It seems obvious from what has been said, how, for a child who learns to read, the ability to decode is instrumental to that

of understanding, otherwise there could be no acquisition of meanings if the reader was not able to decipher correctly a text. Conversely, understanding facilitates decoding, if you think that reading will, in fact, be faster and more correct in the presence of a text whose words and/or contents are known, and if you think that the automation of the decoding process makes more resources available to the understanding process. However, there are pathological conditions in developmental age that clearly show how these two abilities are partially independent. On the one hand, we find children with dyslexia who show a slow, tiring reading, marked by grapheme-phoneme conversion errors, but who maintain the ability to understand the general sense of the written text.

On the other hand, we find ourselves in front of children with an exactly opposite reading skills profile: good decoding ability (fluent, error-free reading) in the presence of very little efficiency of the comprehension process (Cain & Oakhill 2006). The lack of a direct influence between a decoding deficit and a deficit of understanding is also confirmed by the fact that the treatment experiences focused only on the ability to decode, in order to improve the understanding ability, do not produce positive results. In this regard, Edmonds et al. (2009) report the synthesis of various interventions carried out in several years of research (between 1994 and 2004) with school students of various degrees who had difficulties in reading. Among the numerous interventions carried out on different areas (decoding, vocabulary and comprehension) reference is made here to those relating to the sphere of oral comprehension. The results indicate that students with reading difficulties can improve their understanding if they are given training that focuses specifically on this area. In fact, interventions limited only to speech (ie, working only on decoding, fluency or vocabulary) have slight and in any case not significant effects on understanding. So, from these data, it is clear that bad readers can improve their comprehension skills only if one intervenes on the specific components of this competence; while there are no correlations between an intervention specifically aimed at decoding processes

and expectations of strengthening in the sphere of understanding. These results agree with those obtained by other researchers (De Beni et al. 2003), in which it is clear that training that aims to intervene on the ability to understand must focus on the recovery of all those components that are inevitably implicated in it (structure, characteristics of the text, ability to identify the most important information, ability to draw inferences, activate knowledge already possessed, logically order events in a space-time frame etc.). The usefulness of combining this type of intervention with exquisitely metacognitive training, based on the explicit teaching of strategies, on the reflection of the knowledge that the reader has about the objectives of reading, on the importance of the texts, also emerges. These are all objectives that are part of education, at least at a basic level.

If, as has been said above, reading fluently recognizing words quickly and doing it with a certain expression is important, avoiding the child stumbling on unknown words that put him in difficulty, without having the necessary support in education, becomes a very problematic aspect.

As reading becomes more fluid, children develop their ability to read more expressively, taking appropriate breaks, which allow them to better understand the meaning of a text and to avoid it being processed at a low reading level (Healy 1994). At this level is added, for children, the development of a certain degree of automaticity in reading, which is considered essential for the development of understanding, before higher-order processes can be performed precisely (Samuel & Flor 1997). Students must understand the sentences and have an adequate vocabulary and learn how to use these skills to understand the written language (Carroll 1986), since mainly understanding reading is understanding the relationship between words, sentences, elements, inside of the text and between the text and the information that the reader possesses, and implies the ability to extract the message from a text, reflect on it and draw conclusions from it. This requires effective support in the education phase, which is based on previous knowledge, life experiences,

language skills and high thinking skills, especially in weaker subjects. In this process, the motivation to read can be considered one of the key elements of the students' involvement in reading and also what stimulates and feeds their passion.

But there are some components, knowledge and skills to be considered central in the understanding of reading, ranging from oral expression to previous knowledge and experience, from concepts associated with writing to phonemic awareness, from the correspondence between letters and sounds, from the enrichment of vocabulary on semantics, syntax and pragmatics, from metacognition to understanding strategies, from basic and higher-order skills and thinking skills.

6. WHAT STRATEGIES?

In the school context, students must be placed in the immersive conditions in which carefully selected texts may strengthen comprehension activities:

- at the micro-process level:

- understanding of the information contained in a sentence (recognition of words, reading by groups of words, identification of important information of the sentence);
- integration process (create links between sentences);
- formulation of inferences, mastery of replacement words,
- connecting words.

- at the macro-process level:

- towards global understanding of text so that it is coherent (recognition of text ideas, development of summaries, use of text structure.
- development process: going beyond the text, making inferences, making predictions, forming a mental image, reacting in an emotional way, integrating new information within the interpretative repertoire of his previous knowledge,

reasoning about the text,

- metacognitive processes: managing understanding, adapting to the text and the situation, managing the loss of understanding, strategies for solving them. From the point of view of didactic strategies, many can be those to be used in teaching-learning processes in order to make the student aware of the learning path.

Reading requires control of a range of skills and strategies. Let's see some:

- *strategies to plan reading* (activate previous knowledge, make predictions, clarify the intention to read, be aware of the context and the task etc.);
- *strategies for reading words whose meaning is familiar with respect to the spoken word* (recognize frequently read words, use context and graph-phonetic indications, etc.);
- *strategies to understand the meaning of uncommon expressions and words* (analyse the grapho-phonetic indices, interpret prefixes and suffixes, analyse the syntactic indices, use the context to give meaning to a new word, etc.);
- *strategies for creating links in the sentence* (use punctuation, use grammatical clues, interpret the meaning of relationships, etc.);
- *strategies for connecting sentences* (interpreting the meaning of explicit and implicit relationships, making inferences, using context to make sense of a new word, deducing links between sentences when information is implicit, etc.);
- *strategies to create links on larger segments* (paragraph) (identify the main topic, identify the main idea explicit or implicit etc.);
- *management strategies* (highlight parts of the text, detect a loss of understanding, recover the meaning of the text after a loss of understanding, create a link between knowledge and information read, ask for help, retrace steps in the micro-texts, take notes, write down etc.);
- *comprehension strategies* (identify the explicit and implicit main

idea, identify secondary ideas, identify the narrative structure, create connections between clues in the text and previous knowledge, organize the relevant information in the networks, etc.);

- *strategies for information compensation* (highlighting the important passages of the text, checking the relevance of its hypotheses, establishing links between information read and previous knowledge, using analogy etc.);
- *strategies for organizing information* (summarizing text, organizing information in a conceptual diagram, organizing a semantic map or graph, schematizing text structures, schematizing narrative, using semantic maps, etc.);
- *strategies to react to the text to stimulate reflection* (react to texts, evaluate the information contained in a text, etc.).

With different levels of reading comprehension, students must use different strategies to understand their reading, to extract the necessary information or to react and reflect on the text. The student can use these different strategies at different points in the reading process and become aware of the strategies they use, how they are used and then return to their reading process. The strategies that allow a return to the learning process are metacognitive strategies.

It is, therefore, necessary to align the difficulties of texts and objectives pursued.

Understanding a written text requires, therefore, the deliberate implementation of strategies for planning and controlling appropriate cognitive treatments and organizing the information stored in long-term memory. These different types of treatments and strategies, responsible for understanding, allow to identify multiple sources of difficulty that may concern:

- understanding of the language, mastery of linguistic knowledge (vocabulary, writing syntax, etc.);
- the ability to identify the main ideas of a text, to identify

relevant information, to use this information to answer questions, to solve problems;
- the ability to link scattered information, to understand the sequences between different text elements to produce link inferences;
- the ability to link information in the text with its knowledge to produce interpretative inferences;
- the ability to understand the overall organization of the text.

But problems don't stop there. Numerous studies have allowed us to show how the quality of the reader's control over his reading activity affects the quality of his understanding. Weak readers essentially perform a comprehension check at a propositional level but little at a local (inter-phrasal) and global (textual) level: they use each word, massively word for word, like so many isolated sentences that deprive them of being able to check the consistency of the information throughout the text, do not include the usefulness of the semantic integration process during reading or the need to make inferences to correlate the various data of the text, do not ask questions about representations or interpretations from the beginning of the text.

Weaker students find it difficult to find important information to understand how the new information is connected to what they already know, what they have already read above, to detect the inconsistencies of a passage or to pay attention to syntactic and semantic constraints or to evaluate if they understood the content. It is difficult to understand how the usefulness of semantic integration processes in the reading process implies the need to make inferences to relate the various data of the text.

These strategies are linked to the coordinated objectives to be achieved. Children must first understand the mechanisms of reading and its usefulness, that is, realize that the words spoken by someone can be written and read by someone else. As a first step, the teaching of reading at school is used to provide students with specific knowledge of speech and vocabulary, to make them understand

how writing works and to lead them to make connections between writing and the sounds or words of the spoken language. Once the students have grasped this knowledge, the focus is on fluency in reading. At this stage, this fluidity manifests itself mainly through the rapid and spontaneous recognition of some words in a text. Then they move on to reading with increasing pleasure, increasingly understanding the different contents of their readings. Current or easy reading is essential for the step of learning to read and for learning by reading. Teachers have the role of leading students from the first form of awareness of the written word to the stage of learning that proceeds by reading, where their transformation will take place from dependent readers to autonomous, qualified and motivated readers, also through contextual facilitation. Understanding is a dynamic controlled activity that connotes a "good reader" and that sets the regulatory procedures (slows down, goes back etc.) and, from the cognitive point of view, it passes through the construction of the representation of the message (what does the phrase mean), which must transform into a sequence of words which is called proposition (symbolic form).

7. Poor readers and excellent readers

The issues examined above, wrongly overlooked by the school, push to clarify the relationship between decoding and reading comprehension, not forgetting that the latter and its development depend heavily on the reader's ability to read words written accurately and fluently. In fact, the didactic mediation can look at this relationship by working on the process of understanding with tools that enable the student to work on the processes of decoding and recognizing the characteristics of a text, processually reconstructing those mental operations that are needed to understand it. Decoding and understanding reading will also influence the strength of their own relationship. It is therefore important to combine different decoding measures, different

materials and procedures to help students acquire the ability to understand texts, especially on the inferential level. Furthermore, it becomes appropriate, in the explanation of the components that concern the understanding of written texts, to take into account the reflection on the functioning of the underlying cognitive processes, which has important implications in the educational field and which requires adequate and diversified forms of planning and intervention.

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