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Teaching reading from a metacognitive perspective: effects on reading behavior

Práticas de ensino de leitura numa perspectiva metacognitiva: efeitos sobre o comportamento do leitor

Lectura de prácticas de enseñanza en una perspectiva metacognitiva: efectos en el comportamiento de los lectores

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Abstract: This study discusses a perspective of reading teaching so far not widespread throughout the Brazilian public school: the metacognitive perspective. Although this approach is not new, it has not yet penetrated in a relevant way in school. Thus, ask to what extent a metacognitive perspective can contribute to the teaching of reading in the Brazilian public school. From this, through a methodology that mixes the literature review with the experience report, we aim to produce a brief theoretical discussion about the subject in order to support the knowledge of the Portuguese teacher and then presents two Intervention Projects carried out in the Elementary School: one on the teaching of metacognitive strategies, another on the teaching of inferential processes, presenting their developments and conclusions. Finally, it reports results of the projects, arguing that reading teaching in the presented approach promotes autonomy in reading, empowering subjects through their own knowledge.

Keywords: Reading. Metacognition. Teaching.

Resumo: Este estudo discute uma perspectiva de ensino de leitura ainda pouco difundida na escola pública brasileira: a perspectiva metacognitiva. Embora tal abordagem não seja nova, ela ainda não adentrou à escola de maneira relevante. Assim, perguntamo-nos em que medida a perspectiva metacognitiva pode contribuir com o ensino de leitura na escola. A partir disso, por meio de uma metodologia que mescla a revisão de literatura ao relato de experiência, objetivamos produzir uma breve discussão teórica sobre o tema no intuito de alicerçar o conhecimento do professor de português para, em seguida, apresentar dois Projetos de Intervenção realizados no Ensino Fundamental II: um sobre o ensino de estratégias metacognitivas, outro sobre o ensino de processos inferenciais, apresentando seus desenvolvimentos e conclusões. Ao fim, relatamos os resultados dos projetos, defendendo que o ensino de leitura na abordagem apresentada pode promover autonomia em leitura, empoderando os sujeitos por meio de seu próprio saber.

Palavras-chave: Leitura. Metacognição. Ensino.

Resumen: Este estudio discute la perspectiva de la enseñanza de la lectura no muy extendida en la escuela pública brasileña: la perspectiva metacognitiva. Aunque este enfoque no es nuevo, aún no ha penetrado de manera relevante en la escuela. Por lo tanto, pregunte en qué medida una perspectiva metacognitiva puede contribuir a la enseñanza de la lectura en la escuela pública brasileña. A partir de esto, a través de una metodología que combina la revisión de la literatura con el informe de la experiencia, nuestro objetivo es producir una breve discusión teórica sobre el tema para apoyar el conocimiento del profesor de portugués y luego presenta dos Proyectos de Intervención realizados en la Escuela Primaria II: uno sobre la enseñanza de estrategias metacognitivas, otro sobre la enseñanza de procesos inferenciales, presentando sus desarrollos y conclusiones. Finalmente, informa sobre los resultados de los proyectos, argumentando que la enseñanza de la

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lectura en el enfoque presentado promueve la autonomía en la lectura, lo que empodera a los sujetos a través de su propio conocimiento.

Palabras clave: Lectura. Metacognición. Enseñanza.

Introduction

In recent decades, Brazil has witnessed a reasonable growth in the reading proficiency of students in public schools, if we compare current rates with those of two decades ago. However, national and international large-scale assessment programs, such as the Basic Education Assessment System (SAEB - *Sistema Nacional de Avaliação da Educação Básica*, in Portuguese) and the Programme for International Student Assessment (PISA), show that rates are still considered low and insufficient, especially compared to reading rates of other developing nations. In the last 15 years, we have leaped from 396 points in 2000 to 407 points in 2015 (BRASIL, 2016), in the PISA ranking. Nevertheless, we are still far from the program average, which is 496 points, and we still occupy the uncomfortable 59th position out of 70 nations.

Although the limitations of Brazilian public education are mostly related to political-economic issues rather than to didactic-pedagogical[i] ones, and although it is possible to question the methodology and objectives of PISA[ii], one must consider that such data are worrying, as they reveal, mathematically, the speed (or lack thereof) of our ability to react. If we maintain this growth rate (11 points every 15 years), the program average will only be reached around the year 2140, certainly a very distant time for millions of young Brazilians who need to improve their reading proficiency levels today.

Thus, aware of the complexity surrounding the issue of reading in Brazil and considering the limits of strictly pedagogical contributions, in this study we present a teaching perspective that can contribute to the elevation of reading levels of Brazilian students: the perspective of reading as a metacognitive activity.

Based on the fact that such perspective is incipient in the Brazilian public school (CAVALCANTE; RIBEIRO, 2017), this article aims at discussing the metacognitive aspects that underlie and enable the practice of comprehensive reading. In addition, we present the results of two Educational Intervention Projects, developed from a metacognitive perspective in Middle school classes, through action research undertaken by Portuguese teachers, who are graduates from the Professional Master's Program in Letters (PROFLETRAS) of the State University of Montes Claros.

The first project taught metacognitive reading strategies to 9th grade students, while the second focused on the teaching of logical and pragmatic inferences to 6th grade students, the results of both studies point to the improvement of the reading competence of the subjects involved.

Thus, in this article, we initially discuss reading from both an educational and social perspective, and then present aspects of the metacognitive approach considered relevant to Portuguese teachers. Following, we discuss intervention projects cited above, presenting their

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proposals and results, in order to finally draw the extension of the contributions of reading teaching in the perspective presented.

Reading as a sociocognitive activity

There was a time when nations fought illiteracy in order to develop themselves. This is no longer enough today. In addition to being literate, citizens need to be multi-literate, demonstrating their ability to deal with multiple forms of language comprehension and expression. The world has changed and the demands for social participation have accompanied these changes.

Developing reading competence is essential for professional and personal development in contemporary societies. It is a skill capable of both boosting and blocking the development of others. At school, for example, reading problems result in broader problems in the schooling process. If one reads with difficulty and presents low levels of comprehension, she/he will certainly not be interested in school literacy practices, presenting low academic performance in other subjects. But if, on the contrary, she/he reads with proficiency and resourcefulness, the chances of success in school are certainly greater. The same reasoning applies to life in society: proficient readers are more likely to be opinionated, critical and autonomous, with greater chances of positioning, insertion and social participation.

This means that strengthening students' reading competence is expanding their possibilities for social and personal growth. Although this speech is not new, it must be reverberated with intensity, given the precariousness of the literacy and reading indexes of our country. On the one hand, data from the 2016 National Literacy Assessment (ANA - *Avaliação Nacional de Alfabetização*, in Portuguese) attest that about 55% of 8-year-old students in public schools have deficient reading abilities (BRASIL, 2017). On the other hand, data from the National Literacy Institute (INAF – *Indicador de Alfabetismo Funcional*, in Portuguese) show that about 30% of adult Brazilians are functional illiterate, while 34% are at an elementary level of literacy and 25% at an intermediate level, with only 12% being those who read and write with proficiency in Brazil (INAF, 2018). These results indicate, amongst other issues, a pressing need to improve reading teaching practices in Brazil.

These data lead to two interdependent conclusions. The first reveals that there is indeed a serious problem in our country in the field of reading teaching practices, although, once again, it is not possible to think that this is the main reason for our educational ills (see note 1). The second conclusion indicates that, in addition to improving teacher education and reading teaching practices, it is also necessary to provide means to encourage citizens' continued literacy, as it resolves too little to literate students at school and then not providing them with the means for insertion and participation in literate social practices.

In recent years an important achievement of Brazilian public education has been mane in relation to teacher training and to the improvement of practices: the establishment of Professional Masters specific and exclusively designed for public school[iii] teachers. Financed

by the Coordination for the Improvement of Higher Education (Capes), these courses have made the dialogue among the classroom experience and emerging academic theories possible, creating a renewal ballast that will surely revert to better teaching-learning conditions. A healthy example of this movement is the Professional Master's Degree in Letters, the locus of educational reading interventions that will be presented.

Returning to the question of the need to improve the teaching of reading, we believe that some strategies can be developed to make reading more comprehensive and students more aware and knowledgeable of their own reading process, leading them to monitor their reading process. "How do I read? What are my reading difficulties? What influences the boost or slowness of my reader processing? What do I do to gain access to implicit information?" These are some of the questions that often guide the understanding of reader processing itself from a reading teaching perspective through the development of metacognition. While such questions may come naturally to experienced readers, beginner readers need to be encouraged and led to reflection by the teacher.

In this sense, we present below theoretical notes capable of subsidizing first language teachers as they conduct students in the discovery and improvement of their reading behavior, starting from reflections on reading in a sociocognitive perspective, with specific focus on a component of the cognitive system, the metacognition. Following the theoretical approach, we will present two projects developed based on the perspective presented here. In the end, we list the conclusions that these intervention projects allowed us to reach, pointing to the contributions of this article to the teaching of reading.

Reading as a metacognitive activity

"What does read mean and what can I do to get my student to read better?" Many teachers themselves these questions. It could be said that reading is both a cognitive and social activity. In the first case (reading as cognitive activity), we conceive reading as the result of internal mental processes that mobilize diverse knowledge systems. In the second (reading as social activity), we think of the social-historical practice that is exercised when one is interacting with the environment through a (de)codification system. The answer to the second question ("What can I do to get my student to read better?"); however, is more complex and will require more reasoning before answering it.

From a sociocognitive point of view, reading is appropriating a code and recognizing the world in it, linking new knowledge to the previously known ones, processing information and launching oneself into the (un)known. The processing of information through reading, according to Kato (1999, p. 50), can occur in two ways, from a cognitive point of view: through top-down or bottom-up processes. The predominance of one or the other in school reading practices indicates to teachers types of readers and their characteristics, guiding possibilities of interventions.

In the first model, top-down processing, reading is a nonlinear and deductive process in which the reader makes extensive use of extratextual information, ranging from semantic to formal, from macrostructure to microstructure, from function to the form (KATO, 1999).

In the second, on the contrary, the processing is bottom-up, the reading is linear and mainly intratextual information is used. According to Leffa (1996, p. 13), in this type of processing: "comprehension rises from the text to the reader to the exact extent that the reader advances in the text. The letters form words, the words sentences, and the sentences paragraphs".

According to Kato (1999, p. 50-51), these two processing can serve as a basis for describing types of readers: the first type favors downward processing and makes little use of the upward processing. "It is the reader who easily grasps the general and main ideas of the text, is fast and fluent, but on the other hand, makes excessive guesswork, without seeking to confirm guesses with the data of the text, through an upward reading". For the author, this type of reader makes more use of his/her previous knowledge than the information provided in the text.

The second is practically based on the bottom-up process, constructing meanings primarily from the textual data, with few extratext perceptions on the one hand and few "hasty conclusions" on the other. In the author's words, it is "slow and not fluent and has difficulty synthesizing the ideas of the text because it cannot distinguish what is more important from merely illustrative or redundant" (KATO, 1999, p. 51).

The third type of reader characterizes a mature reader - one who knows how to use both types of processing, depending on the characteristics of the task, using them in a complementary, integrated way and at the service of the larger goal of reading: comprehension (KATO, 1999).

In regular school settings, regardless of grade, you can find the three types of readers mentioned. Such definitions constitute a significant answer when we ask what kind of reader our student is, as it helps in identifying teaching goals and correcting reading problems.

Strictly speaking, the processing of reading is a cognitive activity that occurs in the "autopilot mode", without the reader realizing the mental processes involved. However, at times, the reader is urged to notice the cognitive activity she/he is developing. This is especially true at times when reader processing speed drops and misunderstanding sets in. It is at this moment that one needs to migrate from a merely cognitive activity to a metacognitive activity that leads the reader to think strategically about the obstacle that is imposed.

Therefore, in order to transform novice readers into mature readers, in addition to providing many "flight hours", it is essential for teachers to provide students with the opportunity to develop "reading strategies" capable of making them autonomous readers, regulators of the comprehension process itself. From this perspective, reading strategies, taken here as procedures with objectives to be achieved through action planning, would provide the student with several ways to solve reading problems. Therefore, we discuss here the importance of the school to develop a metacognitive behavior in the students, regarding

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reading, guiding the development and use of metacognitive strategies, as we will discuss next.

Metacognitive Strategies

Literature is full of differences between what is cognitive and what is metacognitive in the field of reading, although these limits are not considered rigid (FLAVELL; MILLER; MILLER, 1999). Roughly speaking, in the strategic field, it is possible to differentiate these two levels as follows: cognitive strategies are those that, according to Kato (1999), govern the automatic and unconscious behavior of the reader, suggesting that there is sufficient knowledge by the subject that allow the automation of actions. On the other hand, metacognitive strategies are those that govern conscious reader behavior, guiding knowledge of one's own cognition, as well as reparative procedures for comprehension.

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Cognitive strategies are supported by implicit knowledge, internalized by the fact that one can speak the language, and that, as known, is not always able to describe it (KLEIMAN, 2013). Thus, it is possible to proceed with reading a text based on word recognition, sentence structure, paragraph organization, word meaning, syntactic organization, etc. It is knowledge that allows the reader to move on, without stopping to think about the mental processes involved and in action, because of the high predictability of what is already known.

Metacognitive strategies are supported by knowledge of one's own cognitive functioning and the actions one can take to enhance it. In the words of Marini (2006, p. 343), "one can understand metacognition as the knowledge and control that one has over one's own cognition and learning activities". Thus, during reading, when the reader monitors the process, it allows her/him to be aware of what she/he does not understand. Thus, there will be times when, for different reasons, such as little prior knowledge about the subject of the text, the reader, when assessing her/his own comprehension, will need to take measures to assist her/himself. In other situations, it will be the requirement of the task (and the goals set for it) that will require the reader to use metacognitive strategies that favor the success of this venture.

According to Kato (1999), these are strategies that can be developed from problem-solving situations or from activities that lead students to be more attentive to their understanding process. This fact is explained, in Leffa's (1996) evaluation, as strategies that lead to reflections and evaluations of one's own knowledge, directing the reader to act when misunderstandings emerge.

From this, it can be noted that "metacognition in reading deals with the problem of monitoring the reader's own interpretation during the act of reading" (LEFFA, 1996, p. 46), as well as her/his ability to act in the face of comprehension problems. Such monitoring should result in actions that mitigate comprehension problems. Thus, the reader, at times, resorts to oneself and focuses not on the content of what she/he is reading, but on the processes that allow her/him to reach understanding (CAVALCANTE, 2015).

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Metacognition therefore involves: (a) "ability to monitor one's comprehension" ('I understand this passage clearly; this part is more difficult, but I can still understand the main idea; from this point forward it is not accessible, I need to do something to better understand...') and (b) "the ability to take appropriate action when understanding fails" (" I will have to reread this paragraph"; "this seems to be a key word in the text and I will have to see the meaning in the glossary"; what do I understand from what I just read? It is better to write a summary...) (LEFFA, 1996, p. 40).

Metacognitive strategies are thus triggered as a way of regulating the reading process, leaving the readers aware of the mental operations they perform. It is a behavior that becomes fundamental for the purpose of comprehension and learning, and the benefits of teaching metacognitive reading strategies can be measured when the readers' ability to evaluate their own comprehension is increased.

However, in general, we noticed low reading monitoring capacity in Brazilian Basic Education students. It is not uncommon to find "tract readers"[iv] in our schools. Many students get used to reading without understanding. Thus, like tractors, they go over the text without stopping to think about it or take initiatives that favor understanding.

This finding shows how urgent it is to discuss with students of Basic Education reading activity from a metacognitive perspective. To teach and to encourage metacognitive reading behavior is to give the student the reins of his own understanding. We say "return" because on many occasions we have the impression that some students always depend on the teacher's lead to the process of textual comprehension. Developing means to build autonomy in reading is a way of empowering people, we must not forget this.

About inference building

A second theoretical and practical aspect that has great relevance for improving reading quality is the learning of inferencing, understood by Solé (1998) as a reading strategy. Without this ability one cannot read, she/he can only decode messages. As the reading strategy that leads to comprehension, inferencing requires some degree of metacognitive development from the student, because while some inferences are made by accessing only cognitive skills, others need metacognitive skills to unfold.

In reading, inferencing can be considered an operation that requires formulation of hypotheses and activation of prior knowledge to fill textual gaps through deduction or induction. It is through the production of inferences that the reader fills textual gaps that construct meaning. Although this task becomes, with time, simpler, automatic, it needs teaching, advice and practice to be consolidated. Thus, it is essential that teachers understand this process and be aware that it is not a natural and spontaneous activity to the students. On the contrary, it needs to be taught and practiced to consolidate itself, as defended by Nunes (2017).

Solé (1998) considers the production of inferences as a reading strategy, alongside selection, anticipation and verification. Taken within the framework of metacognition, this

means that while simple inferences can be performed automatically, some degree of awareness and monitoring in the most complex strategies is expected to surface portions of "hidden" meanings, as we said.

Koch and Travaglia (2011, p. 65) explain the phenomenon of inferencing through an interesting metaphor: for the authors, a text resembles an iceberg; what is on the surface is always smaller than what is hidden. Thus, "what stands out" represents the saying, the explicit information, and what is "submerged" represents the implicit information, so that the competence to reach deeper understanding would be the inferential process. This is because "almost every text we read or hear requires us to make a series of inferences so that we can fully understand them". Otherwise, texts would be excessively long pieces to explain everything that needs to be communicated.

Inferencing, therefore, are mental operations "in which the reader constructs new propositions from already given ones" (DELL'ISOLA, 2001, p. 44). This concerns both intratextual operations (in the lexical and/or conceptual field) as well as extratextual operations, when the subject seeks knowledge from experience to fill the textual "voids".

Marcuschi (2008, p. 254) proposes a classification of inferences distributed in three groups: the first is textual based (logical, syntactic and semantic inferences), the second is contextual based (pragmatic and cognitive) and the last one lacks any textual and/or contextual basis (called falsifying and extrapolating inferences). These Marcuschi (2008) propositions bring with them the possibility of thinking from which point or basis inferences are made. Didactically, this classification helps the teacher's mediation in the development of the student's inferential process, because through it, it is possible to elaborate inferential questions, aiming at the production of a specific inference, or at the understanding and evaluation of the type of inference needs to be mobilized by the didactic materials or large scale evaluations, for example.

When working on consolidating the ability to infer implicit information in a text, it is important that teachers have in mind (and on their planning) what kinds of inferences their students need to generate in the proposed activity. From there, they can assess whether the students' difficulty has to do with the inferential process, in general, or specifically with a particular type.

What is observed, however, is that often this does not happen, as many teachers work with inferences without sufficient theoretical knowledge. Theoretical gaps, on the one hand, can be attributed to insufficient formative processes, but on the other, also to individuals who do not demonstrate autonomy in the pursuit of knowledge. We should also consider that large-scale assessments, planning and curriculum alone do not clarify what kind of inference students in each cycle are expected to be able to make. For the theoretical foundation of the Portuguese teacher, we recommend the reading of Ribeiro and Nunes (2017), who present, in general principles, a theoretical overview that aims precisely at the education of the Portuguese teacher in the task of teaching inferencing.

Reflective action and the pedagogical work in reading education

After discussing the importance of reading in people's lives, pointing out the need for Brazilian public education to focus on increasing students' reading competence and having presented a theoretical framework capable of minimally subsidizing the teacher's action, we present two Educational Intervention Projects (PEI – *Projetos Educacionais de Intervenção*, in Portuguese) from the theoretical perspective in focus in this study. In publicizing these projects, we advocate for intervention projects in reading in schools, highlighting that the results achieved may change the landscapes of reading in Brazil.

As anticipated, the presented PEIs were developed within the Professional Master in Letters of the State University of Montes Claros between 2014 and 2017. In this course, one of the research possibilities points to the need for the teacher to identify a teaching problem, plan and execute means of overcoming it through action research, in order to finally analyze the results achieved. In other words, the program guidelines encourage teachers to investigate their own practice and to propose ways to improve it through interventional proposition. Therefore, many researches, such as those presented below, follow the methodological format described in figure 1:

Figure 1. Methodological path of research described in this article

(**1**) Observation → (**2**) identification, description and measurement of a Portuguese teaching-learning problem → (**3**) search of a theoretical framework capable of supporting the understanding and solution / mitigation of the problem → (**4**) planning an Educational Intervention Project → (**5**) implementation of the Intervention → (**6**) process analysis and measurement of results.

Source: Prepared by the authors.

In step (2), to describe and measure the problem, activities and questionnaires are generally applied, as in step (5), when, after the intervention, activities are applied to measure the gains and the limitations of the intervention. Finally, by comparing the initial activities (applied in step 2) and the final one (applied in step 5) activities, it is possible to have a clear picture of the students' progress (or lack thereof) and any difficulties experienced during the action research.

The projects that will be reported here were motivated by the poor reading rates in Brazil, associated with the perception that many students in the final years of elementary school decoded texts but did not understand what they read. Therefore, the low autonomy and reading comprehension of the students demanded from the teachers intervention actions capable of promoting the reading comprehension.

Given this, the first project prioritized the direct teaching of metacognitive reading strategies, while the second focused on the teaching of inferential processes, selecting the teaching of logical and pragmatic inferences[v]. Below we present the structure of each intervention project, and then make some appreciative comments about the initiative. Given the limitations of space and scope of this article, we will strictly present the outline of each

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research, referring readers to read the complete works (CAVALCANTE, 2015; NUNES, 2017).

Chart 1. Educational Intervention Project on metacognitive strategies

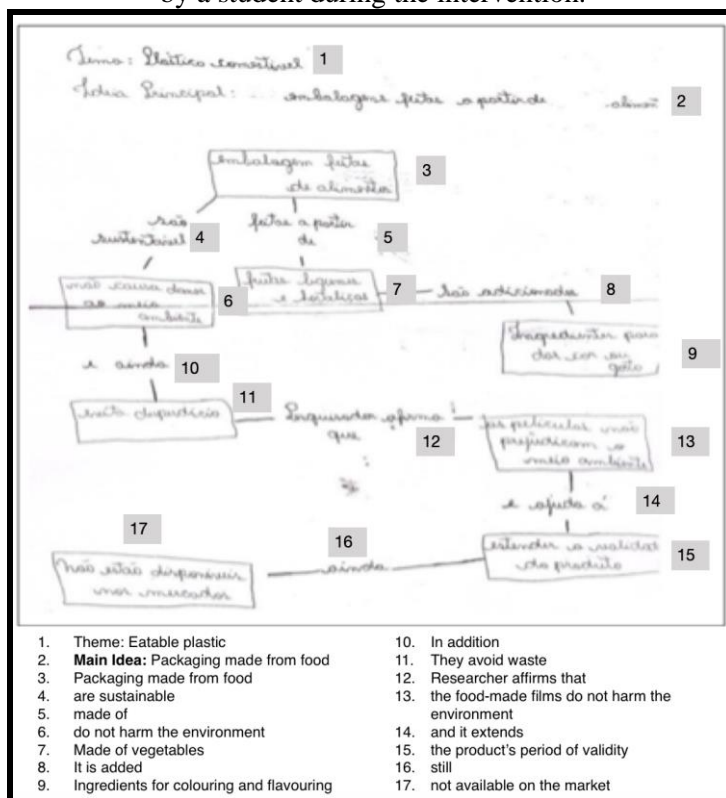| PROJECT 1	
Master's Program	Professional Master's Degree in Letters of the State University of Montes Claros
Thesis' Title	Contributions of the teaching of metacognitive reading strategies in elementary school.
Author	Vanuze Maria Pacheco Cavalcante
Research Period	2014-2015
Context	A significant number of students had high reading comprehension difficulties.
Research problem	To what extent does the systematical teaching of metacognitive reading strategies to elementary students benefit the comprehensive reading process?
Objective	To promote the systematic teaching of four metacognitive strategies, having in mind the "reading to learn" goals, assessing, at the end of the process, whether monitoring and comprehension assessment behaviors were developed through the use of strategies.
Intervention	The thirty-hour intervention prioritized the teaching of metacognitive reading strategies through the practical learning of the following strategies: **i) before reading:** setting reading objectives; **ii) during reading:** identification of the theme and main idea; **iii) while reading:** activation of previous knowledge for the establishment of inferences; **iv) after reading:** elaboration of a summary (written or by visual representation), based on the rules of omission, selection, generalization, construction or integration of information. In the intervention, the main discursive genre mobilized for the production of abstracts was the article/paper for scientific dissemination.
Conclusions (Overview)	After the intervention, we found: • The raise of students' awareness and reflective attitude towards the text, with the monitoring and evaluation of the reading comprehension process (behaviors not previously observed); • Reasonable efficiency in the use of taught metacognitive strategies, noticeable through the production of visual representations and abstracts, evidencing the comprehension of the texts; • The occurrence of many difficulties to trigger previous knowledge and make inferences from them, which demonstrate possible paths for future interventions; • The importance of the teacher's active mediating role throughout the process: teacher modeling[vi] proved to be an efficient strategy for the success of the activities. • The perception that systematic work from the perspective of metacognitive strategies actually promotes changes in the way the student approaches the text, extrapolating the reading on "autopilot", with less cognitive effort; • In addition, the perception that strategy appropriation takes place over time through conditioning of use, although learning is immediate.

Source: Prepared by the authors.

This research was conducted at a public school in the city of Bocaiúva (northern Minas Gerais), in a 9th grade class composed of 32 middle/low income students. The class was chosen due to the poor reader performance observed. After analyzing data from the Minas Gerais Evaluation System (SIMAVE), which suggested the incidence of low monitoring and difficulty in understanding, we developed four didactic modules in the class,

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in a total of 18h/a, namely: Module 1: **Motivate** (which aimed to mobilize students to adhere to the proposal through videos and discussions about brain functioning and our ability to learn); Module 2: **Thinking About Thinking** (focusing on the perception that while we do some daily actions automatically, others need a conscious and reflective state to perform); Module 3: **Time for the strategies** (time reserved for the practice of reading and developing strategies, focusing on individual and collaborative reading of texts of scientific dissemination, followed by teacher modeling and individual exercises); Module 4: **Producing and consolidating** (when reading activities continued, although now focusing on autonomy building and summary production strategy, which resulted in the elaboration of the final output of the intervention (producing a visual-schematic summary.). These modules were designed considering the seven guidelines proposed by Cromley (2005) for teaching metacognitive strategies, which include clarifying the importance of strategies, teacher modeling and the use of strategies.

In the intervention **various reading activities** (collective and individual) were used. They were prepared by the student-researcher based on a series of prompts of the textual genre article for scientific dissemination, as well as videos and supporting songs (see activities in the appendices of CAVALCANTE, 2015). The assessment of learning took place in two ways: throughout the process (by observing students' behaviors in the mobilization of strategies, recorded in a research diary) and by analyzing the intervention product: the schematic-visual summary , which attests to the quality students' understanding, as illustrated in Figure 2:

Figure 2. Schematic-visual summary of the text "Eat with plastic and everything together" produced by a student during the intervention.

1. Theme: Eatable plastic	10. In addition
2. **Main Idea:** Packaging made from food	11. They avoid waste
3. Packaging made from food	12. Researcher affirms that
4. are sustainable	13. the food-made films do not harm the environment
5. made of	
6. do not harm the environment	14. and it extends
7. Made of vegetables	15. the product's period of validity
8. It is added	16. still
9. Ingredients for colouring and flavouring	17. not available on the market

Source: Cavalcante (2015, p. 146).

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Note that to produce the summary above it was necessary to identify the gist and relate it to the other ideas of the text, using, during this course, reading strategies capable of (re) building the textual meanings. In addition to the relationship of ideas, we see the use of macro rules as selecting and omitting, as the student was able to identify information as the main and associate the advantages presented for the so-called "edible packaging".

We believe, however, that the perception of students' progress could be better measured empirically, in the reading activities of the intervention, by observing attitudes that demonstrated, in students, an early development of reading monitoring and the actions resulting from it.

In this paper, one of the most revealing aspects was the perception that many students read on "autopilot" with low monitoring activity, although they were able to develop more active and conscious reader behavior when stimulated and proper directed.

The positive side of teaching reading from the perspective presented is that it led students to understand that reading is an activity that demands a high degree of commitment from the reader. It is not enough to put words together so that meanings will materialize from texts. It is necessary to move and "do things" for understanding to take effect, especially in moments of misunderstanding. Such actions may range from rereading an excerpt, consulting the dictionary, setting a reading goal, raising predictions and hypotheses, self-inquiry, and producing a reading diary or visual-schematic representation of the text, as a possible product of reading aimed at learning. It is in this "movement" that the meanings become effective, as it became clear to students during the intervention.

In the project under analysis, such practices revealed the importance of discussing with students the cognitive functioning of each one, as well as the reader's behavior and ways of favoring understanding. The project also revealed that the pupils claimed to have never been exposed to this type of discussion, despite being in the 9th grade of elementary school, a fact that points to the need for the metacognitive approach to feature the school curriculum definitively, preferably in the early years of elementary school.

The second project presented deals with the teaching of inferential processes, understood here, based on Solé (1998), as a reading strategy that accesses metacognition, because it demands conscious state. It is noted that this was an open point for further research indicated in the previous project, as it was observed that although the students have considerably improved reading engagement, many have presented grater difficulties when inferring.

Chart 02. Inferential Intervention Educational Project

PROJECT 2	
Master's Program	Professional Master's Degree in Letters of the State University of Montes Claros
Thesis' Title	Logical-pragmatic inferences: a didactic proposal applied to the 6th grade of elementary school
Author	Cláudia Tatiana Prates Nunes
Research Period	2015-2017
Context	It was observed that many students were advancing in school without consolidating

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	basic reading skills, such as those resulting from the ability to infer.
Research problem	To what extent can the work with logical and pragmatic inferences in humorous texts contribute to the development and / or consolidation of the ability to perform inferential reading of 6th grade students?
Objective	Develop, apply and evaluate a pedagogical intervention project aimed at developing the ability to make logical and pragmatic inferences in students of 6th grade.
Intervention	Teaching inferential processes through the study of: i) implicit and implied; ii) discussions about retrieving previous knowledge (world knowledge, linguistic knowledge and interactional knowledge); iii) elucidation about what are logical inferences, which start from the relations between the premises; iv) elucidation about what are pragmatic inferences, which start from the students' previous knowledge, subdividing into conversational inferences and evaluative inferences. In the intervention, the mobilized discursive genres started mainly from humor: comic strips and jokes. To track student progress during the intervention activities, we considered the following pattern of correction: acceptable inference (AI); unacceptable inference (UNI) and unrealized inference (UNR).
Results (Overview)	• After the intervention, we noticed an important reading autonomy in the students, who started to assume their own voice, defending their conclusions based on possible inferential processes. • Such empowerment was reached though the reduction of copy responses and decreasing, albeit discretely, of unacceptable inferences during the intervention and final activity. • Another significant finding from student responses was that many learned to conclude by relating different texts. • The students' interest and participation in the activities was substantially different from what we witnessed in the classroom, which, in our view, provided both empowerment and improved inference production. • At the end of the intervention, comparing reading activities performed by students at the beginning and end of the process, we observed a quantitative increase of 18% in relation to the production of acceptable inferences in reading activities. In qualitative terms, the greatest progress has been in students' reading behavior in everyday life, as they have become more participative and, in relation to the text, more investigative.

Source: Prepared by the authors.

This research was conducted at a public school in Montes Claros (northern Minas Gerais), in a 6th grade class composed of 32 low-income students. The class was chosen because of the students' difficulty in accessing implicit information and producing inferences. It was noticed that the low mobilization capacity of metacognition did not allow students to "unite the ends" of the meanings. Thus, initially, we applied an initial survey test (self-elaboration, cf. NUNES, 2017, p. 136) consisting of 5 questions. In this test, we found that the students' greatest difficulty was in producing logical and pragmatic inferences. From there, we planned and developed an intervention that lasted 26 hours, dividing the activities into four didactic modules, named: 1. Knowing; 2. Inferencing; 3. Practicing and 4. Storing in memory, as reported in Chart 2.

In the activities, we use humor genres, such as comic strips and jokes, both to engage students in activities through fun and because these genres necessarily require inferential activity to produce the mood effect. Finally, a final probing test was applied and we found an 18% increase in the ability to produce acceptable inferences when comparing the results of

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the initial probing test (before the intervention) to the results of the final probing test (after the intervention). Figure 3 illustrates, with one question, the type of reading activity performed. This is a question in which students would need to relate textual information and retrieve prior knowledge to reconstruct textual meanings.

Figure 3. Question applied in the Intervention for the teaching of inference

Exercise Translation:

3) Read the texts below and answer the questions.

Text I
Government is the governing authority of a giving nation or political unit, that has as its main goal to rule and organize society.

Text II
Comic translation:

Panel 1: Mother asks the children: "Children, what are you playing?" Kids answer: "We're playing government."
Panel 2: Raquel: "Ok, but don't make any mess, OK?"
Panel 3: Mafalda: "Don't worry. **We're going to do absolutely nothing".**

a) In text II, the way children play government in the last comic corresponds to what was informed in text I? Justify your answer.
b) For you, what is the children's opinion of the government?

Source: Nunes (2017, p. 115).

Questions a and b require students to retrieve prior knowledge and establish relationships between the relevant information in the supporting texts, I and II, to reach a conclusion (inference). The correction of activities demonstrated that item "a" had 65% success, while item "b" had 73%. Learning to relate information and understanding that every text makes a movement out of itself, through the activation of previous knowledge, was an

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important step for this 6th grade class that, like so many others, had not developed the metacognitive ability of inference.

During the development of this project, we noticed, on the part of some teachers, some strangeness regarding the expression "teaching of inferential processes". Because it is, in the view of some, a subjective and unstable procedure (compared to grammatical procedures, for example), many end up giving this competence, in the classroom, a secondary role, considering it intuitive, spontaneous and hard to teach. Without making inferences; however, one is not able to read, she/he can only decode texts.

Thus, one of the major contributions of this project was to demonstrate the possibility of formal teaching of inferences. In the intervention, we started from the mundane definition of inference (illustrating that, for example, when we wake up in the morning and see through the window the wet street, we infer that it rained the night before) to reach and delimit the concept in the field of reading through genres, specifically from the sphere of humor, showing that while some inferences start from the text itself (such as logical inferences), others need to be anchored in prior knowledge (such as pragmatic inferences). Similar to the first project, students also pointed to the unprecedented teaching of this procedure, claiming that they had never participated in similar discussions.

At least two points deserve to be highlighted in the above projects: the first is that teachers' works were based on needs of the students, not only on the curriculum. Instigated by the guidelines of the Professional Master's Program in Letters to locate a pedagogical problem related to the teaching of Portuguese, the teachers assigned a researcher gaze to their own classes, identifying a problematic aspect that prevented the progression of learning. Then, it was necessary to investigate theoretical and practical ways to try to minimize the teaching problem and, from the choices, to draw up an action plan, evaluating, at the end, the contributions of the intervention.

Now, we see here that the teacher acted both in identifying and proposing the solution and analysis of the entire teaching project, which is notably a methodological research, given the dialectic between theory and observed practice. Projects such as these, if spread and continued, are highly likely to transform the reading scenario in Brazilian Basic Education.

Finally, we reaffirm that reading projects that grant reading autonomy to people produce a kind of empowerment that is fundamental to Brazilian Basic Education: one that can make students aware and confident of their ability to learn and progress.

Final remarks

Learning to read is an uninterrupted activity that accompanies one throughout her/his life. It is an incessant movement in which producer and recipient instances participate, diverse knowledge systems and the reading competence at stake modes itself, being defined and consolidated through reading experience and the development of metacognition.

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Although the reorientation of pedagogical work does not, by itself, transform Brazil's reading landscape, without it, however, nothing changes. It is clear that the traditional approach to the teaching of reading no longer serves us. Teaching reading through mechanical activities of locating and copying fragments or producing unsubstantiated opinion, for example, does not form autonomous and conscious readers, but only reproductive or meaning-extrapolating readers[vii]. On the other hand, teaching how to think and take actions in search of understanding, regulating their own reading behavior, as intended in metacognitive approaches, tends to turn students into more active readers engaged in their own understanding process.

As, in this text, we relate the theoretical contributions of the metacognitive perspective to the promising results of the presented projects, we conclude that the teaching of reading through sociocognitive (*lato-sensu*) or metacognitive (*stricto-sensu*) approaches is very contributory to the consolidation of reading skills in Basic Education, once it promotes autonomy in reading, and empowers students through their own knowledge.

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Notes

[i] It is illusory to suppose that the crisis of Brazilian education is a didactic-pedagogical crisis. The educational crisis is first and foremost a social crisis. In a nutshell: it lacks investments in schools and in the teacher's career. Many students lack decent living conditions.

[ii] Amongst criticism of the PISA evaluation model is that the program works with "national averages" without regard to performance by school or region. This causes the observed educational inequalities from north to south of the country to pull the national average down, because while we have excellent schools, we also have schools that function precariously without building or desks, for example.

[iii] We cite, for example, the Professional Master's Program in Philosophy (PROFILO), the Professional Master's Program in Letters (PROFLETRAS), the Professional Master's Program in Mathematics (PROFMAT), etc.

[iv] The term "tractor reader" refers to a type of reader who goes on reading without even understanding what she/he is reading. Such a reader, made as a tractor, runs over the text and "overlooks" the possibilities of producing meanings without realizing that reading takes place through comprehension.

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[v] A diagnostic study produced by research before the intervention revealed that the students' greatest difficulties in making inferences were in the production of logical and pragmatic inferences, a fact that justifies the choice of these types of inference for the intervention.

[vi] By "modeling" Isabel Solé (1998) means the cases in which teachers offers a model of how to do, sharing their own strategies or cognitive processes to integrate students in the proposed activities.

[vii] We allude here to common activities in traditional reading education, where students are asked to locate and copy fragments of the text or to freely comment on the theme of the text.

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