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Que formação em educação básica temos e queremos? A voz dos estudantes	277
<i>Teresa Mendes, Susana Porto</i>	
Relationship between teachers' metacognitive awareness and instruction of metacognitive reading strategies	287
<i>Luís Castanheira, Alina Felicia Roman, Rucsandra Hossu</i>	
Saúde, cultura e educação escolar: interculturalidade e reflexividade crítica	295
<i>Paulo Pires de Queiroz, Valéria da Silva Trajano, Fagner Henrique Guedes Neves</i>	
Slovenian and portuguese preschool teachers: the importance of cooperation with parents	303
<i>Luís Castanheira, Tatjana Devjak, Sanja Berčnik</i>	
Tipologias praticadas pelos professores nas escolas públicas de música: estudo de caso	314
<i>Sidónio Oliveira, António Pacheco, Maria Helena Vieira</i>	
Transição da educação pré-escolar para o 1.º ciclo do ensino básico	324
<i>Deolinda Ribeiro, Susana Sá, Paula Quadros-Flores</i>	
Didática e Formação de Educadores e Professores	335
21st century education: progress or doom?	337
<i>Cláudia Martins</i>	
A comunicação escrita no 1.º ciclo do ensino básico	348
<i>Ana Sofia Pereira, Adorinda Gonçalves</i>	
A matemática no quotidiano: uma contextualização na resolução de problemas	359
<i>Helena Campos, Bárbara Morgado, Paula Catarino,</i>	
Aspetos da matemática escolar numa cadeia geracional de professores de matemática	369
<i>Isabel Teixeira, Cecília Costa, Paula Catarino, Maria Manuel Nascimento</i>	
Atividades de investigação na aula de matemática: um estudo no ensino básico	379
<i>Catarina Correia, Manuel Vara Pires</i>	
Atividades digitais através do EdiLim no 1.º ciclo do ensino básico	389
<i>Henrique Gil, Joana Ponciano</i>	
Audição musical ativa, elemento motor de uma prática transformadora das expressões artísticas	399
<i>Maria do Rosário da Silva Santana, Helena Maria da Silva Santana</i>	
Avaliação e comunicação: perceções e práticas de duas professoras de matemática	407
<i>Cristina Martins, António Guerreiro</i>	
Concordâncias e a construção do significado da preposição “de” em PLNM	416
<i>Carla Sofia Araújo</i>	
Conhecimento para ensinar probabilidades de futuros professores dos primeiros anos	426
<i>José António Fernandes, Paula Maria Barros, Gabriela Gonçalves</i>	
Conteúdo e profundidade das reflexões escritas de futuros professores: cruzando resultados	435
<i>Manuel Vara Pires, Cristina Martins, João Carvalho Sousa</i>	
Das perceções à intervenção educativa: estratégias neurodidáticas na formação inicial de professores	442
<i>Daniela Gonçalves, Filipa Monteiro de Freitas, Teresa Castro</i>	
Diálogo científico en enseñanza bilingüe (inglés) sobre geología para maestros en formación	450
<i>Jaime Delgado-Iglesias, María Teresa Calderón-Quindós</i>	

Relationship between teachers' metacognitive awareness and instruction of metacognitive reading strategies

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Abstract

According to international studies one of the challenges faced by the Romanian educational system is functional illiteracy. This means that students have difficulties in comprehending longer text at a first read so they are not able to make use of it as a lifelong ability. A key factor related to reading comprehension is metacognition, or the ability to regulate and control their own reading process. It has been demonstrated that metacognitive reading is an ability which makes the difference between good and poor readers. Although metacognitive reading strategies like planning, monitoring and evaluating can be learned in the classroom, traditional curricula and instructional approaches are deficient in supporting them. The aim of this study is to investigate whether conscious metacognitive teachers are more likely to teach strategies that promote students' self-monitoring throughout the reading process. Participants included 68 primary school teachers from Romania. The Metacognitive Awareness Inventory for Teachers was utilized to measure the teachers' metacognitive awareness in educational settings. Subjects also filled in a questionnaire designed to determine the level of explicit teaching of metacognitive reading strategies in pre-, during- and after reading tasks. Results showed a direct positive relation between teachers' metacognitive awareness and direct instruction of metacognitive reading strategies used in the classroom. The findings of this study highlight the need for teacher training and support in metacognitive awareness-promoting practices, a link to autonomy in life-long learning.

Keywords: metacognition; reading; explicit teaching; primary school.

Resumo

De acordo com estudos internacionais, um dos desafios enfrentados pelo sistema educacional romeno é o analfabetismo funcional. Isso significa que os alunos têm dificuldades em compreender um texto mais longo numa primeira leitura e não são capazes de usar esta competência como uma habilidade ao longo da vida. Um fator-chave relacionado com a compreensão de leitura é a metacognição ou a capacidade de regular e controlar o seu próprio processo de leitura. Foi demonstrado que ler de forma metacognitiva é uma habilidade que faz a diferença entre os bons e menos bons leitores. Embora as estratégias metacognitivas de leitura como planeamento, acompanhamento e avaliação possam ser aprendidas em sala de aula, os currículos e abordagens mais tradicionais criam dificuldades nesses apoios. O objetivo deste estudo é investigar se os professores metacognitivos são mais propensos a ensinar estratégias que promovam a automonitorização dos alunos durante todo o processo de leitura. Os participantes incluíram 68 professores do 1.º Ciclo do Ensino Básico da Roménia. O inventário de consciência metacognitiva para professores foi utilizado para medir a consciência metacognitiva dos mesmos em contextos educativos. Foi também preenchido um questionário concebido para determinar o nível de ensino explícito de estratégias metacognitivas de leitura durante e depois das tarefas. Os resultados mostraram uma relação direta e positiva entre consciência metacognitiva e o uso de estratégias metacognitivas de leitura utilizados em salas de aula. Os resultados deste estudo destacam a necessidade de formação de professores em práticas de promoção da consciência metacognitiva como uma forma facilitadora para uma maior autonomia na aprendizagem.

Palavras-Chave: metacognição; leitura; ensino explícito; escola primária.

1 Introduction

Whether they need to follow instructions when playing a game or to analyse a literary text, students need the basic ability of reading. When pupils do not understand what they are reading, it means that there is a significant impact on their performance in all areas of study. Thus, the difficulty of understanding and learning appears to be the main reason for school failure and dropout.

Ideally, the process of decoding and understanding the message should be simultaneously. It seems, however, that automation of reading comprehension takes longer than automation in decoding itself. Students learn relatively quickly how to decode a word, a sentence, a text, but understanding it may be a superficial act even in adulthood. In the context of permanent education and self-regulated learning, this should benefit of a greater attention. In our era, much of the information is available in written, online texts but in order to be able to use this information, it is absolutely necessary for students to fully understand what they are reading. They have to decide on the usefulness and authenticity of the information and use their critical thinking processes, so that the reading text serves them as a resource. This is not always possible because the understanding of the written message is influenced by the type of the text (structure, type, difficulty, attractiveness) and by the reader (linguistic, cognitive and motivational skills).

At European and international level, reading literacy represents a key competence and a primary area of student assessment in terms of mastering basic knowledge and skills. In the sense of PIRLS (Progress in the International Reading Literacy Study) reading is defined as the ability to understand and use those written language forms required by society and/or valued by the individual, the comprehension being operated by four basic processes: focusing on and retrieving explicitly stated information; make straightforward inferences; interpret and integrate ideas and information; and evaluate and critique content and textual elements (Mullis, Martin & Sainsbury, 2016). PIRLS takes place every five years and evaluates the reading comprehension ability of the fourth-grade pupils both on literary and informational texts.

Romania has been a participant in the evaluation system of PIRLS and PISA (Program for International Student Assessment) since 2006. Although some progress has been made, the statistics of 2016 show that functional illiteracy remains a problem that the Romanian students have to cope with. Unfortunately, this happens in spite of the successive transformations suffered by the Romanian educational system in the effort to reach the international standards. As far as the curricular level is concerned, both the curriculum and the assessment system for the competence of communication in the mother tongue were revised, with the national assessments following the international model being introduced at the end of the third, fifth and seventh year of study.

The poor results obtained by the Romanian students raise many questions about their causality. PIRLS tests contain items that activate higher thinking processes, which imply a permanent verification of the accuracy of the responses. Responses contain distracting items, and students have to check the correctness of their answer with the text. The analysis of Romanian pupils' performance in international tests revealed that some of the explanations of the poor results are represented by the lack of instrumentation on the text, the misunderstanding of the questions, the lack of training for multiple choice items, with plausible distractors, the difficulty of selecting the essential information, insufficient training on informational texts, and the habit of providing automated answers, without even trying to make sure that the correct answer is contained in the text (Mancaş, Stoicescu & Sarivan, 2013). Students fail to put in place monitoring strategies for understanding, called metacognitive strategies. Although these strategies are not "visible" and are often automatic and unconscious, a series of studies have shown that they can be taught and learned even from younger age, leading to a deep understanding of the meanings of information (Eilers & Pinkley, 2006).

The aim of this study is to investigate to what extent the Romanian teachers involved in primary education tend to explicitly teach students metacognitive control techniques of reading comprehension and how are these connected with their own metacognitive awareness.

The first research question is "Do the Romanian primary teachers teach strategies that promote self-monitoring during reading?". From what we know, such an approach has not been achieved in Romania so far, so the analysis of this issue could be an important step in understanding the causes of Romanian pupils' low performance in reading comprehension tests.

In order to facilitate the development of metacognitive skills in pupils, teachers must have these skills themselves (Kallio, Virta, Kallio, Virta, Hjärdemaal, & Sandven, 2017). They have to adjust and monitor their own didactic activity. Metacognitive awareness consists of three parts: thinking of what one knows (metacognitive knowledge), thinking of what one is currently doing (metacognitive skill) and thinking of what's current cognitive or affective state is (metacognitive experience) (Hacker, Dunlose, & Graesser, as cited in Balcikanli, 2011). Although this stage is a very important one in the educational setting, teachers' metacognitive awareness has not benefited the same attention from the researchers and has been studied to a lesser extent than students' metacognition, nor it was related to the metacognitive teaching of reading. Therefore, the second question of the research is: "Are the conscious metacognitive teachers more likely to teach strategies that promote self-monitoring during reading?"

The results of this investigation can be used by teachers in primary education as well as by vocational training providers in the sense of involving the metacognitive process during the teaching process.

2 The role of metacognition in reading

Even if it appeared two decades ago, metacognition is by no means a clear field of study, the delimitation of what is and what is not metacognitive, it is not very clear. Borkowski (1996) described the theoretical bases of metacognition as fragile mini-theories, any empirical attempt of synthesising it is an almost impossible task to accomplish.

Flavell (1976) is the one who contributed most to popularizing the concept. He defines metacognition as "one's knowledge concerning one's own cognitive processes and products or anything related to them" (p. 232). Metacognition plays an important role in communication, reading comprehension, language acquisition, social cognition, attention, self-control, memory, self-instruction, writing, problem solving, and personality development (Chauhan & Singh, 2014).

There has been no unanimity regarding the components of metacognition. However, the majority of authors make a distinction between metacognitive knowledge and metacognitive regulation/control. Metacognitive knowledge was divided into declarative knowledge, procedural knowledge, and conditional knowledge (Jacobs & Paris, as cited in McCormick, 2004). Schraw and Moshman (1995, as cited in Balcikanli, 2011) have described declarative knowledge, as the knowledge of "knowing about things", procedural knowledge as "to know how to do things" and conditional knowledge as "to know why and when to do things". In the process of reading monitoring, it is important for the student to have knowledge about various reading strategies (declarative knowledge), to know how to use these strategies (procedural knowledge) and to know when to use strategies (conditional knowledge).

Metacognitive knowledge develops later, the ability to use it explicitly improves with age. Many adults have difficulty in explaining what they know about their thinking process, which means that metacognitive knowledge may not be explicit to be accessed and used.

Metacognitive control is about regulating and modifying the progress of cognitive activity. Three components of regulation are most commonly described in the literature: planning, regulation and evaluation. Planning includes selecting a strategy for matching goals and scheduling time and strategies. Regulation implies observing and checking the progress towards the goal. The evaluation refers to the review and modification of the strategy for achieving the goal (McCormick, 2004, p. 80). In other words, the subject first analyses what to do, makes a plan, analyses the usefulness of the plan, and then makes changes and revisions of the original plan.

The role of metacognition in the reading process has been emphasized in the literature due to its positive contribution to the performance of students with reading difficulties. Shanahan, Callison, Carriere, Duke, Pearson, Schatschneider and Torgesen (2010) have shown that understanding strategies help to increase comprehension, overcome difficulties in understanding the text and compensate incomplete text-related knowledge. Using metacognitive strategies helps students reflect on their thinking process before, during, and after reading (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007). The most commonly used metacognitive reading strategies are planning, monitoring and evaluation.

The lack of explicit attention to metacognition in the curriculum has led researchers to conclude that good readers spontaneously acquire knowledge and metacognitive control, but studies show that some students need additional explicit instruction to monitor their learning.

Although metacognition involves higher-level cognitive processes and operations, and it is more developed in adults and high school students, primary school children also have the ability to monitor and regulate cognitive processes during reading. Eilers and Pinkley (2006) suggested that reading comprehension at primary school pupils can be developed if learners are taught what metacognitive strategies to use during reading. If students know when and how to use regulatory skills to monitor their understanding, this will affect reading performance in a positive way.

This recommendation has been confirmed by a series of studies. Dignath, Büttner and Langfeldt (2008) conducted a meta-analysis on 48 studies investigating the effect of self-regulation and metacognition training on pupils in grades I to VI. The meta-analytical study has shown that metacognitive interventions have a strong effect; the most effective methods being the training of metacognitive control (planning, monitoring, evaluation) and knowledge of strategies.

3 Methodology

The sample consists of 68 Romanian teachers in primary education, 4 males and 64 females. The teaching experience is between 1 to 40 years (an average of 20,64 years). Regarding the level of studies, more than 45% have master's degrees, and over 70% hold the didactic degree I (the last stage of the vocational training in education).

Teachers voluntarily completed two questionnaires. The first tool, Instructional Practice on Metacognitive Reading Inventory (IPMRI) was designed by the authors of the research to determine the level of explicit teaching of metacognitive reading strategies in pre-, during- and after reading a text. This survey focuses on the teaching of metacognitive reading in the three dimensions: planning, monitoring and evaluation. It contains 24 items in which subjects responded on a scale of 1 (never or almost never) to 5 (always or almost always) to what extent they instruct students to use metacognitive reading techniques when reading a text at first glance, independently. The statistical analysis indicated a good internal consistency, with the Cronbach's Alpha coefficient of .88.

The second survey used in this study was The Metacognitive Awareness Inventory for Teachers (MAIT) (Balcikanli, 2011) which measures the metacognitive awareness of one's own teaching. MAIT contains 24 items distributed equally on the six subdimensions of both metacognitive knowledge and regulation: (1) Declarative Knowledge (Ex. *I have control over how well I teach*); (2) Procedural knowledge (*I use helpful teaching techniques automatically*); (3) Conditional knowledge (*I know when each teaching technique I use will be most effective*); (4) Planning (*I organize my time to best accomplish my teaching goals*); (5) Monitoring (*I ask myself questions about how well I am doing while I am teaching*) and (6) Evaluating (*I ask myself if I could have used different techniques after each teaching experience*). Piloted on student teachers, MAIT proved to be a valid and reliable inventory to measure teachers' metacognitive awareness in educational research area (Kallio et al., 2017). In this study, Cronbach's Alpha is .86, which indicates a good internal coherence of the instrument.

4 Results

The results from IPMRI and MAIT were coded according to the five points scale, with a data range of 1-5.

Descriptive statistics of IPMRI indicated a general average score of 4.06 (SD=.48), which shows that subjects *usually* make use of these practices. Of the three metacognitive reading strategies, subjects teach less Planning (M= 3.84). Teachers have stated that they are more instructing students to activate previous knowledge related to the topic of the text (item 5) and less to analyze the length and structure of the text (item 2) (Table 1).

The descriptive analysis for Monitoring indicated a high level of teaching of this strategy (M=4.09). It seems that what teachers teach the students the most is to check whether they understand the vocabulary (M=4.73) and to ask for help if they do not understand (M=4.76). The least taught is the

Table 1: Explicit teaching of before reading metacognitive strategy (IPMRI-Planning).

	M	SD
I teach students, before reading the text to:		
1.Reflect on the purpose of reading (obtaining some information, pleasure, etc.).	4.10	.94
2.Analyze the length and the structure of the text.	3.08	1.37
3.Anticipate the content by image.	4.05	1.03
4.Anticipate the content by title.	3.79	1.05
5.Activate previous knowledge related to the topic of the text	4.20	.82
Explicit teaching on planning (subscale total score)	3.84	.61

strategy of verifying whether predictions have been made about the text ($M=3.73$) and to reflect on the extent to which they can maintain their interest in the material (item 18) (Table 2).

Table 2: Explicit teaching of during reading metacognitive strategy (IPMRI- Monitoring).

	M	SD
I teach students, while reading the text, to:		
6.Check whether they have understood the main idea of the fragment.	4.11	1.07
7.Stop and check if pre-reading before the text has come true.	3.42	1.21
8.Check whether new predictions have been made about the text based on the information.	3.39	1.09
9.Check whether they have made connections with previous information in the text.	3.95	.85
10.Check whether and how they realize that what they read makes sense.	4.17	.84
11.Reflect on the right strategy if they did not understand certain words or fragments.	4.22	.82
12.Make inferences (refer to implied information, draw conclusions based on previous information)	3.92	1.01
13.Make mental images related to the content of the text.	4.00	.97
14.Make sure they understand the vocabulary	4.73	.58
15.Reread the portion of text they did not understand.	4.54	.74
16.Slow the pace of reading, if they do not understand.	4.23	.96
17.Ask for help if they did not understand.	4.76	.60
18.Reflect on the extent to which they can maintain their interest in the material	3.73	.94
Explicit teaching on monitoring (subscale total score)	4.09	.54

Subjects mostly teach the Evaluation strategy of reading comprehension ($M = 4.19$). Summarising the text is the most commonly used method ($M = 4.6$) along with the revision of the text to check the level of understanding ($M = 4.45$). The least used is to consider whether they have chosen the right strategy to understand a difficult text ($M = 3.73$) (Table 3).

The descriptive analysis of Teachers Metacognitive Awareness (MAIT scores) showed a high level of metacognitive awareness both globally ($M = 4.43$) and for the six dimensions, averaging between $M=4.18$ for Evaluating and $M=4.61$ for Planning.

Inferential processing suggests a strong positive relationship between MAIT and IPMRI ($r=.602^{**}$), the most powerful effect being on the procedural knowledge dimension ($r=.591^{**}$) (Table 4.) The simple linear regression showed that metacognitive awareness is a predictor of instructional practices on metacognitive reading ($F(6,61) = 8,058$, $p < 0,001$; R^2 adjusted = .387).

In order to verify the differences in the metacognitive reading instruction level based on metacognitive awareness, we considered three levels of MAIT: low (under $M-SD$), average ($M\pm SD$) and high (over $M+SD$), where $M=4.43$ and $SD=0.37$. ANOVA variance analysis [$F(2,65) = 17.057$, $p < 0.01$] and Tukey post-hoc tests indicated statistically significant differences between all groups of subjects in metacognitive reading instruction (Table 5).

Table 3: Explicit teaching of after reading metacognitive strategy (IPMRI-Evaluation).

	M	SD
I teach the students, after reading the text:		
19. Verify to what extent the predictions have been verified.	4.00	.93
20. Consider whether they have chosen the right strategy to understand a difficult text.	3.73	.87
21. Revise the text to check the level of understanding.	4.45	.67
22. To summarize the text.	4.60	.62
23. Continue text processing according to the purpose of reading.	4.05	.78
24. Reflect on how to use information in real life.	4.32	.80
Explicit teaching on evaluating (subscale total score)	4.19	.48

Table 4: Correlations between Teachers Metacognitive Awareness (MAIT scores) and Instructional Practice on Metacognitive Reading (IPMRI).

	Instructional practice on metacognitive reading (IPMRI)
Declarative Knowledge	.428**
Procedural knowledge	.591**
Conditional knowledge	.534**
Planning	.374**
Monitoring	.439**
Evaluating	.342**
MAIT (total)	.602**

**Correlation is significant at the 0.01 level (2-tailed).

Table 5: Differences in metacognitive reading instruction based on metacognitive awareness level. Tukey post-hoc test results.

	Low level	Average level	High level
Low level (M=3.84)	-	.53*	.97*
Average level (M=4.51)		-	.43*
High level (M=4.95)			-

*. The mean difference is significant at the 0.05 level.

5 Conclusions

This study aims to investigate if primary school teachers' metacognitive awareness is associated with instruction on metacognitive reading strategies. The results highlighted that subjects predominantly teach self-regulation reading techniques, some strategies such as Metacognitive Evaluation of reading being taught more frequently. Teachers have a high level of metacognitive awareness, both on Knowledge of Cognition and Regulation of Cognition. This high level could be explained by the fact that the sample included teachers with long experience in education and solid training, almost half hold a master's degree and two thirds the highest degree of didactics. In the study of Ciascai (2015), the metacognitive awareness profile of master students was also high, possibly explained by the training on metacognition and self-regulated learning offered by the specialization.

The results revealed that metacognitive awareness is a strong predictor and explains 38% of the metacognitive reading variance (R^2 adjusted=.387). The correlation is significant across all six sub-dimensions of metacognitive awareness. The more teachers put into operation the declarative, procedural and conditional knowledge and have a metacognitive control of didactic activity through planning, monitoring and evaluation, the more likely they are to teach strategies that promote self-monitoring during reading. Metacognitive knowledge, and especially procedural and conditional, are most closely related to metacognitive teaching of reading. Presley, Borkowski and Schneider (as cited in Balcikanli, 2011) affirmed that individuals with a higher degree of procedural knowledge tend to have a larger repertoire and to sequence strategies effectively. Teachers who have knowledge of how and in what situations different teaching techniques are put in place tend to teach pupils more to use reading comprehension techniques.

Metacognitive strategies are like a guide designed to help children constantly check whether they are on the right track. Teachers with lower metacognitive awareness levels are less likely to instruct students to use metacognition in the reading process compared to high-level teachers. This result highlights the need to increase metacognitive awareness among primary school teachers who have lower levels on both Knowledge of Cognition and Regulation of Cognition.

In the context of student-centered learning, metacognitive training is a promising way in promoting autonomy in reading and learning. In metacognitive training programs, students are taught to monitor their reading, encouraged to ask questions on whether what they read makes sense, sounds or looks right. They are also taught to use a number of reparatory strategies when experiencing difficulty in reading. Further training in reading instruction should include developing metacognitive awareness of teachers, too. In order to facilitate self-regulated learning of pupils, educators should be encouraged to reach high levels of metacognitive awareness of teaching themselves.

6 References

- Balcikanli, C. (2011). Metacognitive awareness inventory for teachers (MAIT). *Electronic Journal of Research in Educational Psychology*, 9(25), 1309-1332.
- Borkowski, J. G. (1996). Metacognition: theory or chapter heading? *Learning and Individual Differences*, 8(4), 391-402.
- Boulware-Gooden, R., Carreker, S., Thornhill, A., & Joshi, R. (2007). Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement of third-grade students. *Reading Teacher*, 61(1), 70-77.
- Ciascai, L. (2015). Metacognitive awareness of teachers: master degree students in curriculum management. In *ICERI Proceedings* (pp. 3118-3126). Seville: IATED. <https://library.iated.org/view/ciascai2015met>.
- Chauhan, A., & Singh, N. (2014). Metacognition: a conceptual framework. *International Journal of Education and Psychological Research (IJEPR)*, 3(3), 21-22. http://ijepr.org/doc/V3_Is3_Oct14/ij4.pdf.

- Dignath, C., Büttner, G., & Langfeldt, H. P. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review*, 3(2), 101–129.
- Eilers, L. H., & Pinkley, C. (2006). Metacognitive strategies help students to comprehend all text. *Read Improvement*, 43(1), 13-29.
- Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231-236). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Kallio, H., Virta, K., Kallio, M., Virta, A., Hjärdemaal, F., & Sandven, J. (2017). The utility of the metacognitive awareness inventory for teachers among in-service teachers, *Journal of Education and Learning*, 6(4), 78-91. <https://files.eric.ed.gov/fulltext/EJ1145258.pdf>.
- Mancaş, A., Stoicescu, D., & Sarivan, R. (2013). *Provocarea lecturii. Ghid metodologic pentru dezvoltarea competenței de receptare a mesajului scris*. București: EDP.
- McCormick, C. B. (2003). Metacognition and learning. In I. B. Weiner, W. M. Reynolds, & G. E. Miller (Eds.), *Handbook of Psychology: Educational Psychology* (pp. 79-102). New Jersey: John Wiley & Sons., Inc.
- Mullis, I. V. S., Martin, M. O., & Sainsbury, M. (2016). *PIRLS 2016 reading framework*, https://timssandpirls.bc.edu/pirls2016/downloads/P16_FW_Chap1.pdf.
- Shanahan, T., Callison, K., Carriere, C., Duke, N. K., Pearson, P. D., Schatschneider, C., & Torgesen, J. (2010). *Improving reading comprehension in kindergarten through 3rd grade: a practice guide*. <http://files.eric.ed.gov/fulltext/ED512029.pdf>.