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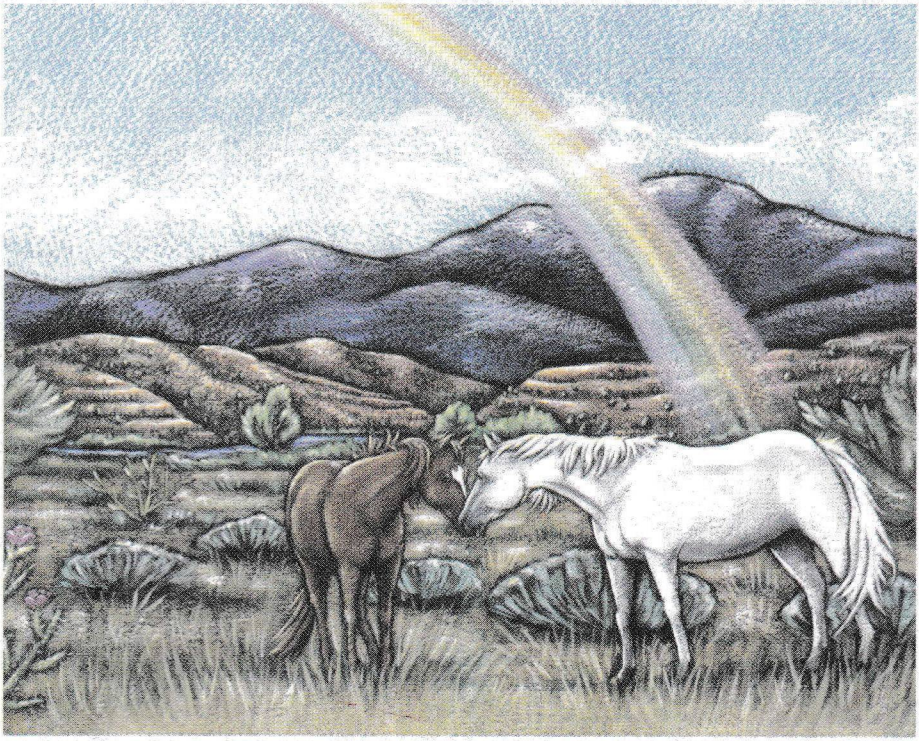

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Developing Reading Strategies Among 4th Grade Students in Hungary

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The concept of reading as a scientific term has changed dramatically in the past few decades. Reading itself may be considered as an individual's activity. However, in educational assessment practice, it is the students' reading achievement that becomes important. The quality of reading is often measured by means of paper-pencil tests containing texts and some questions about those texts. Although the term 'reading comprehension' may refer to an abilty revealed by factor-analytic studies of intelligence (Carroll, 1993), we use it as a multicomponential concept of reading that is affected by many other components of reading (see Cromley and Azevedo, 2006).

In Cromley and Azevedo's model, reading strategies are among the most significant predictors of reading comprehension, i.e. students' ability to plan, monitor and evaluate their reading processes. Also, there is much empirical evidence about the importance of strategy –level components of reading comprehension in van Kraayenoord and Schneider's (1999) study.

Teaching reading strategies as early as in the elementary school years is a rather new approach in Hungary. After some unexpected results from international system-level surveys (IEA, PISA), researchers are now beginning to focus on new ideas coming from international studies. As Adamikné (2001) observed, the appearance of the idea of process based reading is considered in Hungary a "new reading instruction method", although process based reading has been widely known among in-service teachers in many countries since the 70s.

The importance of reading strategies in reading comprehension is supported by research on mature readers' comprehension processes. Block, Gambrell and Pressley (2002) provide a summary of mature readers' characteristics based on research results: connection relevant prior knowledge to what they read, selecting a valid thinking process, constructing mental images, questioning, inferring, summarizing, monitoring whether or not they are understanding, and eliminating confusion (Block, Gambrell and Pressley, 2002).

These factors listed above emphasizing the reader's activity completely support those views which focus on the *interactive, constant changing character of reading and the reader's compensation processes*.

There exist several interpretations of reading strategies. According to the most general one, reading strategies are the higher-level elements and mental processes used during reading. The reader plans and actualizes the strategy that suits his/her aim. Some of the most important elements are: activating the scheme (previous knowledge), text analysis, anticipation, conclusion, and synthesizing. Keen and Zimmermann (1997) find these strategies to be the most

effective ones: Activation of prior knowledge, prioritising information (deciding on the main ideas), questioning the author and the text, evoking sensory images, drawing inferences, retelling or synthesizing, using fix-up strategies.

In several European countries, teaching reading is practiced in the following way: having already been taught to read words, students will begin reading lessons with a warm-up conversation, after which children read the text using some kind of technique. The session ends with the teacher asking questions about certain pieces of information based on the text and its content. This method seems to be only checking the meaning of the text and differentiating between relevant, and irrelevant information. If we compared this method of teaching to the discipline of mathematics it would be like asking students for the result, having never talked about how to calculate them.

On the contrary, teaching strategic processes in reading requires other conditions and methods as revealed by Block, Gambrell and Pressley (2002):

- Teachers taught a small repertoire of comprehension strategies
- They instructed in how to use strategies
- Students practiced strategies
- Students modeled and explained strategy use to one another
- Teachers conveyed to students information about when and where to use strategies
- Teachers often used strategy vocabulary (clarification, summaries, and so on)
- Flexibility in students' use of strategies was apparent
- Teachers continually sent the message that student thinking mattered.

A new method called transactional strategy instruction was born based on these criteria. Its positive effect on improving comprehension has been proved by several studies. It is revealing in that this method is largely built on Palincsar's reciprocal teaching method which is mainly based on the fact that students explain to the teacher, and to each other, how they have solved a task or a problem (Palincsar and Brown, 1985). The appearance of reciprocal teaching is not accidental in teaching reading strategies since we cannot avoid getting to know our mental, cognitive processes during reading. The best way to get to know them is talking about them. Therefore, metacognition has an especially important role in teaching reading strategies and even in strategy problem solving.

Method

Sample

The experiment involved 4th grade students from 5 schools, 9 classes. These different schools were selected from urban and rural areas of Bács-Kiskun county, Hungary. Five classes were labeled as 'experimental'. The other 4 schools were labeled as 'control'. The experimental group consisted of 94 students (49 boys and 45 girls), and the control group consisted of 64 students (30 boys and 34 girls).

Tests

As pre- and post-tests of the experiment, two parallel reading comprehension tests were developed by the authors. These tests included questions on scientific and narrative texts. The pre- and posttest were administered both in experimental and control classes. The pre- and posttests differed in that different texts were used, but the difficulty level and the type of questions remained the same.

The intervention program

We held a meeting for the teachers of the experimental classes before the research, and kept in touch during the

intervention program. During that meeting, they were given a description about the aims of the investigation and the strategies to develop.

The experimental group received instruction as shown in Table 1. Beyond the characteristics described above as generally approved features of strategic and mature reading, there is one more point in this design: It is gradually built or developed, i.e., once a strategy enters the program, it remains an element for continuous repetition. We started the program with strategies belonging to the planning cluster of reading processes, then continued with monitoring and maintenance strategies, and finished with evaluation strategies. As indicated in the last row, teachers continuously enriched students' metacognitive knowledge about what there were doing and learning about reading.

Table 1 The structure of the program

Strategies	1st week	2nd week	3rd week	4th week	5th week	6th week	7th week	8th week
Activating scheme	x	x	x	x	x	x	x	x
Preview	x	x	x	x	x	x	x	x
Scanning	x	x	x	x	x	x	x	x
Process reading		x	x	x	x	x	x	x
Text anticipation		x	x	x	x	x	x	x
Checking predictions		x	x	x	x	x	x	x
Creating sensory images			x	x	x	x	x	x
Summarizing				x	x	x	x	x
Conclusion				x	x	x	x	x
Synthesizing				x	x	x	x	x
Metacognitive knowledge	x	x	x	x				

The program lasted for eight weeks. During the first half of the study, children were introduced to a new strategy each week in the research classes. We did not change any other circumstances, in order to maintain ecological validity of the experiment. An important criterion in choosing a strategy was that it could not be completely unknown in the Hungarian teaching [reading] system.

In the first week, children learned and practiced pre-reading strategies. During the second week on we introduced continual reading techniques. This technique is known as the Anglo-saxon reader response which is the adaptation of process reading mainly used with literary texts (see Adamikné, 2006). We extended this technique to all types of texts. The essence of this method is that our expectations from the text are checked, before reading as well as during reading. The teacher makes the children stop reading – depending on the length and complexity of the text- and asks them whether their expectations about the text are met, and how they expect the text to be continued. This method – according to our experience – largely promotes children's self-assessment on their own thinking and reading processes. Furthermore, this method helps them maintain their attention throughout the whole text and avoids children with poorly developed reading skills from being lost because children discuss what they have learned from the text as a group.

Two other strategies- text anticipation and its correction- were also taught during the second week. Children made expectations about the text or a passage and then they checked whether or not the events fulfilled their expectations, as well as to how, and why, the text continued in the way it did.

In the third week, children practiced creating mental images and events. New pieces of information were to be absorbed through as many senses as possible. This method and text anticipation are combined in Wood's IEPC method (Imagine, Elaborate, Predict, Confirm). According to this method children are to imagine and elaborate what they have experienced or seen with their imagination. They then predict what is going to happen and afterwards they either confirm, criticize or disagree with it. (Wood, 2001)

In the fourth week, post-reading strategies were introduced: summary, conclusion and synthesis take place. The most important difference between them is that summary is only based on information from the text, while conclusion also includes children's opinions on these bits of information, as well as the author, and even the text itself. Synthesis includes children's individual and common expectations, anticipation and reasons for their displeasure or unhappiness.

Discussing and teaching information on reading was conducted only during the first four weeks since from the fifth week on, children used the new methods, including these strategies, to read texts.

Results

The results of the pre-tests have not shown significant differences between the control and the experimental groups. However, there are significant differences in the results of the post-tests.

Table 1 shows the means and standard deviations achieved by the experimental and control groups on the pre- and posttests.

Statistical comparison between experimental and control group results show that while there is no significant difference on the pre-test ($p=.37$), the post-test reveals significant differences favoring the experimental group ($p<.01$). The effect size of the experiment was 5.6%. (Cohen's $f = 0.24$, $f2 = 0.56$). According to Cohen's (1969) interpretation, this effect size is considered of middle size.

Table 2 Means and standard deviations achieved by the experimental and control groups

	Pre-test		Post-test	
	Mean	Standard deviation	Mean	Standard deviation
Experimental group	22.14	5.78	19.76	5.70
Control group	22.86	4.32	17.13	4.71

Analyzing sex differences we found that there were no significant differences both on the pretest and on the posttest. A 2 (experiment or control) X 2 (boy or girls) analysis of variance was conducted. The effect of the experiment proved to be significant, $F(1,157) = 9.14$, $p = .003$, although the effect of students' sex was marginal, $F(1,157) = .03$, $p = .87$) Also the interaction of the experimental condition and students' sex was not significant, $F(1, 157) = .19$, $p = .67$).

Discussion

We have seen that comprehension scores of those students who were in the experimental classes were significantly better than the ones in the control classes. Therefore, we can assume that Hungar-

ian children's comprehension skills can be improved with teaching reading strategies. Unfortunately, we could not examine which elements of the programme contributed to the results either promoting, or hindering them. The efficiency of this training program may inspire in-service teachers to search for text-books and instructional manuals that emphasize and elaborate the importance of teaching reading strategies.

Sex differences proved to be non-significant both before, and after, the intervention program. What is more important there was no interaction between the efficiency of the training program and students' sex indicating that the both girls and boys may equally profit from intervention programs that address elementary school students' reading awareness and reading strategies.

Further refinement of this research design will hopefully show which components of the intervention programs prove to be most efficient in fostering students' reading comprehension. At this point, we can state the intervention program as a whole eight-week unit seems to be efficient. Since the program was embedded in regular classroom lessons, the generalizability and ecological validity of our results can be seen as sufficient .

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