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Differences in Strategy Use in the Reading Comprehension of Narrative and Science Texts Among Students With and Without Learning Disabilities

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The aim of the study was to investigate differences in cognitive and metacognitive strategy use in the reading comprehension of narrative and expository texts among students with learning disabilities (SLD) and without learning disabilities (SWOLD). A total of 122 fifth and sixth graders took part in the study. Half of them (n = 61) were SLD facing severe reading comprehension problems, while the rest were good readers. Two think-aloud procedures were used to assess strategy use of a narrative and an expository text. Various inconsistencies were inserted in order to force students to use strategies and presented on a PC screen. Reading comprehension of both types of texts was evaluated by measuring blocks of meaning recalled by the students after completing the think-aloud procedure. Findings are discussed in light of reading comprehension disabilities, metacognition, and the domain-specific nature of cognitive and metacognitive abilities.

Keywords: **narrative, expository, learning disabilities, metacomprehension, strategies**

Introduction

Reading comprehension can be defined as the ability to extract and obtain meaning from a written text for a reason (Vellutino, 2003). This ability is crucial and, therefore, a widespread goal for learning in school, especially in the late elementary grades (Sweet & Snow, 2003).

Successful reading comprehension depends on the presence of certain prerequisites; namely, the coordination of reading decoding and word knowledge (Kintsch, 1998; Sideridis, Mouzaki, Simos, & Protopapas, 2006; Snow, 2002), along with the emergence of a coherent mental representation, which may include background knowledge related to textual information in a context of semantic relations (Kendeou, van den Broek, Helder, & Karlsson, 2014). Researchers in the field of reading comprehension agree that skilled and successful readers use cognitive and metacognitive strategies (e.g., Pressley, 2006) and monitor their reading comprehension flow in order to establish a coherent representation of text (Cain, 2009). Thus, they use metacomprehension to support their extraction of meaning extraction from a given text.

Metacomprehension

Metacomprehension has been defined as metacognition in the field of reading comprehension (Maki & McGuire, 2002); more specifically, as someone's ability

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"to judge his or her own learning and/or comprehension of text materials" (Dunlosky & Lipko, 2007, p. 228). Flavell (1976. 1979) initially described metacognition as knowledge about, and regulation of, cognition; hence, metacomprehension outlines one's knowledge about and regulation of reading comprehension. Elements of metacognition, such as strategies, have been the focus of metacognitive research for more than 30 years, both in typical populations and those with learning disabilities, illustrating the prominent role of metacognition. Strategies, in turn, are special actions, or sequences of actions, that someone uses in order to facilitate the learning process (Graesser, 2007; Jitendra, Burgess, & Gajria, 2011), and strategy use is related to better reading comprehension (Baker, 2002; Duke & Pearson, 2002; Kendeou, van den Broek, White, & Lynch, 2007).

Weinstein and Mayer (1986) proposed a taxonomy for strategies that remains valid although dated. Cognitive strategies may involve either rehearsal or elaboration. Rehearsal strategies like rereading or looking back in a text are associated with "surface" processing and lower levels of performance. As such, they are appropriate for tasks that require simple recall or identification of important information. Elaboration strategies, in turn, are associated with "deeper" processing and more sophisticated achievement, building bridges from what is already known to what will be known, mediated by prior knowledge activation. Deeper processing strategies like inferencing and summarizing help students to be actively engaged, employing more cognitive sources and effort in tasks required reading comprehension (Botsas & Padeliadou, 2003; Graesser, McNamara, & Vaulehn, 2005).

Metacognitive strategies refer to students' deliberate or unconscious actions to plan, monitor, and regulate their performance. Their use offers students the opportunity to control, regulate, and master their reading comprehension and has been also linked to improved achievement and performance (Baker, 2002; Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007; Cubukcu, 2008). Active and successful comprehenders have clear goals in mind, so they use planning strategies, like evaluating the difficulty of the text before reading it and directing memory and comprehension strategies to begin reading metacognitively. They also use monitoring strategies, like identifying when and where difficulty in reading occurs, answering self-questions about processing the text, and predicting, clarifying, and summarizing textual information. When successful comprehenders encounter difficulty or a "break" in the flow of reading comprehension, students use regulating (fix-up) strategies, like looking back or forward for information that might help them resolve the difficulty, paraphrasing, and looking up a word in their lexicon (Livingston, 2003).

Narrative vs. Expository Texts

It has also been documented that text genres differ in degree of difficulty (Abadiano & Turner, 2002; Jitendra et al., 2011; McNamara, Graesser, & Louwerse, 2013; Williams, 2005) and that the acquisition and use of reading comprehension strategies are "genre specific." That is, there is a great deal of variation between strategies used for either narrative or expository texts (Best, Floyd, & McNamara, 2008; Duke, Bennet-Armistead, & Roberts, 2002; Eason, Goldberg, Young, Geist, & Cutting, 2012; Reutzel, Smith, & Fawson, 2005).

Narrative texts. Narrative texts depict events, episodes of real or imaginary life, and emotions (Cain, Oakhill, & Bryant, 2004; Sweet & Snow, 2003). Such texts follow a rather consistent hierarchy, highlighted by story grammar (setting characters, problem, solution, and outcome) (Hall, Sabey, & McClellan, 2005). Narrative texts are full of known, everyday words placed in a predictable and time-affected organizational structure (Dymock & Nicholson, 2010; Hall, 2004).

Expository texts. Expository texts, on the other hand, communicate factual information and are often difficult because of their organizational structure (Abadiano & Turner, 2002) and the nature of the information presented (Hall et al., 2005; Saenz & Fuchs, 2002). Thus, summarizing the factors that have a significant impact on students' difficulties in comprehending expository texts, Saenz and Fuchs (2002) noted text structure, conceptual density and familiarity, along with vocabulary knowledge and prior knowledge as the main ones. The structure is complex, with many missing cohesive connections and without a continuous flow of information and time sequence, contrary to narrative texts (Best et al., 2008; Kendeou, Muis, & Fulton, 2011). This type of text structure often includes a sequence of facts, a collection of episodes, problem-solution and description signals. Those signals are semantic and syntactic devices, words that mark and constitute the complex structures. Students' ability to appropriately apply the strategy of "using those words and revealing the conceptual frame" in a coherent way is vital for comprehending expository texts (Diakidoy, Moyskounti, & Ioannides, 2011; McNamara et al., 2012). Furthermore, words used in expository texts are often of high content density, unknown, abstract, and technical. Indeed, text structure is probably one of the causes of variability in reading comprehension performance and strategy use in expository vs. narrative texts (Diakidou, Stylianou, Karefillidou, & Papageorgiou, 2005; Horiba, 2000; Padeliadu & Antoniou, 2014).

Finally, concepts and ideas presented in expository texts make students' prior knowledge vital for comprehending the text, via integration and assimilation of new information in the new mental representation of text meaning (Best et al., 2008). Without such prior knowledge, there will be a "comprehension disaster," or meaning extraction will be limited to explicit information, as students cannot generate accurate and complex inferences (Kendeou & van den Broek, 2007; Singer & O'Connell, 2003).

Students With Learning Disabilities

Students with learning disabilities exhibit academic deficits, with the vast majority experiencing serious reading problems (Fuchs, Fuchs, Mathes, & Lipsen, 2000; Gersten, Fuchs, Williams, & Baker, 2001). Reading comprehension problems include deficits in decoding, word recognition, and fluency that interfere with reading comprehension (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Petersen-Brown & Burns, 2011). Additionally, students with learning disabilities lack prior knowledge and struggle to develop reading fluency that could support their reading comprehension (Dexter & Hughes, 2011; Mason & Hedin, 2011). Along with a lack of prior knowledge, poor metacomprehension plays a role in reading comprehension failures. Thus, it has been proposed that students' limited or maladaptive use of cognitive and metacognitive strategies and/or vitiated monitoring are some of the causes

of their reading comprehension deficits (Berkeley, Scruggs, & Mastropieri, 2010; Dexter & Hughes, 2011; Kim, Vaughn, Wanzek, & Wies, 2004; Mastropieri, Scruggs, & Graetz, 2003).

Readers with learning disabilities make rather ineffective and maladaptive use of less complex "surface" processing strategies that are not appropriate for their chronological age (Botsas, 2012; Botsas & Padeliadu, 2003; Fuchs et al., 2000 [meta-analysis]; Padeliadu, Botsas, & Sideridis, 2002). On the contrary, good (typical non-learning disabled) readers possess a well-developed repertoire of strategies, which, along with their adaptive way of using them, helps them to reach successful comprehension (Botsas & Padeliadu, 2003).

Research in the field of reading comprehension and metacomprehension has been increasing over the past three decades (Baker, 2008; Dignath & Büttner, 2008; Sencibaugh, 2007). Most of these studies have focused on reading comprehension of narrative texts, with fewer including expository text. Further, only a few studies have examined reading comprehension of both narrative and expository texts, especially in the field of learning disabilities (Abadiano & Turner, 2002; Saenz & Fuchs, 2002).

Instructional models for science education have changed in recent years to more constructivist, inquiry-based methods (Scruggs & Mastropieri, 2007). Nonetheless, much of the content to be taught still depends on reading expository texts, which is difficult for students with learning disabilities to access. This is particularly challenging due to higher expectations for students with learning disabilities studying the general science curriculum, where they have significantly lower performance than their typical classmates (Fleischman, Hopstock, Pelczar, & Shelley, 2010; Kaldenberg, Watt, & Therrien, 2015).

Students with learning disabilities and expository texts. Padeliadu and Antoniou (2014) reported that students with learning disabilities face problems in comprehending any kind of text, because of their general inability to understand textual structure and making mental representations. However, reading and comprehending an expository vs. a narrative text is particularly difficult for students with learning disabilities (Hall, 2004; Nation, 2005). According to Saenz and Fuchs (2002), the difficulty of children with learning disabilities to comprehend expository texts is associated with conceptual density, less familiar concepts and difficult and technical vocabulary. Their use of text structure, a vital strategy for comprehending expository discourse, also differed significantly from that of their classmates who are typical readers (Dymock & Nicholson, 2010; Hall, 2004).

Best and her colleagues (2008) suggested that decoding had lower and inconsistent relation with reading comprehension of expository texts than narrative ones, noting that the effects of prior knowledge and the way students access and use it overrides the effects of reading abilities. Although world knowledge and reading comprehension of an expository text were related moderately in magnitude, this relationship was significant. Because of their poor or fragmented prior knowledge, students with learning disabilities struggle to form a coherent representation of the meaning of a text, often failing to generate the necessary inferences (Best et al., 2008). As strategy implementation may be the answer to this problem, it is crucial to study their repertoire and monitoring procedures, namely, metacomprehension.

Given the difference in difficulty between narrative and expository texts, one might assume that those differences could be extended to every part of reading comprehension. That is, that differences could be found in metacomprehension, and especially in strategy use (Jitendra et al.,2011; Williams, 2005). Although studies pointing to the greater difficulty of expository texts in different ability groups (learning and non-learning disabled students) have documented the above factors as the cause, they have not thoroughly examined the effect of strategy use in this area.

Purpose of the Present Study

The present study investigated cognitive and metacognitive strategy use while reading narrative and expository texts.

The specific research questions were as follows:

1. Are there differences between and within groups of students with and without learning disabilities in strategy use as they read narrative and expository texts?
2. How is strategy use contributing to reading comprehension performance in narrative and expository texts reading?

Methods

Participants

The so-called "fourth-grade slump" refers to the consistent finding of reduced reading comprehension (among others) performance (Sancore & Palumbo, 2008; Sweet & Snow, 2003). During the third and fourth grade, students mainly read narrative texts. However, after fourth grade, children move beyond narrative text to expository texts, such as science, in order to gain knowledge about academic subject domains (Snow, 2002).

Consistent with this finding, the Greek elementary school curriculum places science subjects in the fifth and sixth grade. Based on the assumption that students in fifth and sixth grade can efficiently process expository texts and that metacognitive and metacomprehension abilities are settled after fourth grade (Botsas, 2012), we chose the study's sample from this age group.

A total of 122 fifth and sixth graders from mainstream schools in Central Northern Greece took part in the study. Half of them ($n = 61$) were diagnosed as having learning disabilities (not mental retardation) and having Greek as their first language. They were attending resource rooms in their mainstream schools for several hours a day, and demonstrated severe reading comprehension problems. The nonlearning disabled students ($n = 61$) participating in the study were selected based on the following procedure. The teachers of the students with learning disabilities in the mainstream classroom nominated a classmate that they thought was a very good reader. As research data imply (Best, 2009; Dole, 2004; Quatroche, Bean, & Hamilton, 2001), teachers' choices about their students' performance are typically valid and correlate with the results of standardized performance tests.

In order to confirm membership to the correct reading ability group (students with and without learning disabilities), a Greek standardized test, the *Test of Reading Performance* (TORP) (Padeliadu & Sideridis, 2000), was administered.

Students were assigned to the good readers' group if their performance was in the upper 10%. The reading comprehension performance of students with learning disabilities (SLD) on TORP was significantly lower than that of their typical classmates who were nonlearning disabled (SWOLD) ($M_{LD} = 3.67$, $SD_{LD} = 1.68$) and ($M_{SWOLD} = 16.46$, $SD_{SWOLD} = 1.06$), $F(1,121) = 2,529.38$, $p < .001$.

Fifty-six of the students (45.9%) attended fifth grade and 66 (54.1%) attended sixth grade. Seventy-four of them (60.7%) were boys and 48 were girls (24.6%). Finally, 46 of SLD were boys (75.4%) while 15 (24.6%) were girls.

The mean age of SLD was 11 years 3 months with a minimum of 9 years 8 months and a maximum of 13 years 7 months. The mean age of SWOLD was 11 years 1 month, with a minimum of 9 years 10 months and a maximum of 12 years 6 months.

Dependent Variables

The dependent variables were the cognitive and metacognitive strategies that SLD and SWOLD used while reading a narrative and an expository texts. The cognitive strategies were either rehearsal or elaboration. The former were low-level and "surface" processing actions like rereading and slowly decoding a word, whereas the latter were "deeper" processing ones, like making inferences and asking questions about information in the text. The metacognitive strategies consisted of planning, monitoring, and regulating actions. Planning strategies used by students in order to develop an appropriate plan comprehending the text included making predictions about the text's difficulty, genre, and structure. Monitoring strategies were special actions that students used in order to control the flow of their comprehension, like self-questioning about the procedure, using coherence criteria, and identifying difficulties and/or comprehension "disasters." Finally, control processes aiming to "fix" problems of reading comprehension flow were identified as regulating strategies.

Research Instruments

Reading comprehension strategy use. Two think-aloud procedures were used to evaluate students' strategy use. Think-aloud retelling protocols are common in assessing reading comprehension strategy implementation and monitoring (Afflerbach, 2002; Botsas, 2012; Reed, Vaughn, & Petscher, 2012). However, there are some concerns about using think-aloud procedures with SLD because memory and/or expressive language requirements may cause additional problems for them beyond reading comprehension (Dunlosky, Rawson, & Hacker, 2002). Also, concerns about scoring think-aloud procedures have been noted (Reed et al., 2012). Those considerations have been taken into account, resulting in methodological arrangements like segmenting texts in parts, breaking up the retelling procedure, and using a second scoring coder, along with the agreement calculations between coders. Nonetheless, think-aloud retelling protocols remain one necessary way of actual metacomprehension assessment, tapping into the implementation of strategy and monitoring procedures, not only metacognitive knowledge assessment (Botsas, 2012).

For the first think-aloud procedure, a narrative text was created involving a story about an incident that took place on a merchant ship (a tanker). One hundred and seventy words, chosen from the basic vocabulary of a fifth-grade textbook, were

used to construct the narrative text. Various inconsistencies were inserted into the text in order to challenge students' reaction and strategy use. These included lexical (a rare technical term), internal (two contradicting sentences), external (a contradiction to a common sense sentence), grammatical (grammatical error), syntactical (syntactical error), and structural inconsistencies.

For the second think-aloud procedure, an expository text was drawn from a fifth-grade science textbook. It was a text of 180 words about earthquakes. The text was previously taught to the fifth graders, so it was familiar to the students (both fifth and sixth graders). Inconsistencies of all kinds were also inserted into the text. Readability information and indexes of the two texts are presented in Table 1.

Table 1. ***Characteristics of the Narrative and Expository Texts Used in This study***

Measures	Narrative Text (*The Ship)*	Expository Text (*Earthquakes*)
Number of words	164	180
Number of sentences	18	12
Guiraud's R	9.53	8.28
Language efficiency level	Basic	Mediocre
Fleisch Reading easy	71.09	62.98
Gunning Fog	71.85	63.25

Both texts were segmented into parts in order to set up a step-by-step procedure and avoid rapid processing (Afflerbach, 2002). The texts were presented on a personal computer screen, following Baker and Anderson (1982) and Bossert and Schwantes' (1996) methodology. Every student had to read the text (part by part) and afterwards tell the researcher what he/she comprehended, along with everything that passed through his/her mind. Students had the opportunity to go back and forth in the texts if they wished. A "warm-up" practice for each type of text was given along with strict instructions before students started thinking aloud.

The whole procedure was tape-recorded and coded afterwards for strategy use. Functional definitions of 49 cognitive and 74 metacognitive strategies, created in advance, were used as a coding instrument for strategy use. A second coder coded 12.3% of the total number of protocols. The percentages of between-coder agreement were 98% and 95% for the narrative for the expository texts, respectively.

Reading comprehension performance in narrative and expository tests. A free recall measure of "pause units" (Reed et al., 2012) was used to assess reading comprehension performance. Every text was segmented to parts in order to put up a step-by-step procedure and avoid rapid elaboration. Both texts were given to 10 fifth and sixth graders who were very good readers and the points in the text that they paused were marked. Ten "pause units" were identified in every text. The raw score of the recalled units made up the reading comprehension score for both types of text.

Data Analysis

Descriptives. Means and standard deviations were computed for all variables.

Inferential. One-way analyses of variance were used to examine differences between the two reading ability groups for the narrative and expository texts. Also, paired-samples *t*-tests were conducted in order to examine differences in performance within the two reading ability groups (SLD vs. SWOLD) in different types of texts. Finally, linear regression analyses were conducted in order to find what part of reading comprehension variance could be explained by strategy use in narrative and expository texts.

Results

Differences in Strategy Use Among SLD and SWOLD in Narrative and Expository Texts

Data collected through think-aloud procedures for students' strategy use were coded into the categories of cognitive and metacognitive strategies. In order to conduct an in-depth analysis, following Weinstein and Mayer's (1986) classification, cognitive strategies were defined as rehearsal and elaboration and metacognitive strategies as planning, monitoring, and regulating.

An analysis of variance revealed significant differences between students with and without learning disabilities in cognitive and metacognitive strategy use while reading a narrative text. Specifically, SLD used fewer "surface" rehearsal strategies, $F(1,121) = 30.681$, $p < .0001$ and elaboration ones, $F(1,121) = 11.645$, $p < .001$, compared to SWOLD. Also, they used significantly fewer planning, $F(1,121) = 13.026$, $p < .0001$, monitoring, $F(1,121) = 221.808$, $p < .0001$, and regulating metacognitive strategies, $F(1,121) = 88.296$, $p < .0001$, compared to SWOLD.

SLD presented the same pattern of strategy use in reading expository text. That is, they used significantly fewer "surface" processing rehearsal cognitive strategies, $F(1,121) = 4.979$, $p < .05$, and fewer elaboration ones, $F(1,121) = 6.499$, $p < .05$, than SWOLD. As for metacognitive strategies, SLD used fewer monitoring strategies, $F(1,121) = 196.078$, $p < .0001$, and regulating ones, $F(1, 121) = 216.071$, $p < .0001$, than SWOLD. Students in two ability groups did not differ in planning strategies use (see Table 2).

Table 2. ***Means and Standard Deviations of Strategy Use Among Students With Learning Disabilities (SLD) and Without Learning Disabilities (SWOLD) Reading Narrative Text***

	SLD		**SWOLD**	
Strategy Use	*M*	*SD*	*M*	*SD*
Cognitive strategies	22.98*	2.65	11.39	4.71
Metacognitive strategies	5.51*	2.57	10.80	3.81
Rehearsal cognitive strategies	22.28*	6.77	11.52	4.06
Elaboration cognitive strategies	.70*	1.07	5.57	3.58
Planning metacognitive strategies	.00*	.00	.21	.49
Monitoring metacognitive strategies	.05*	.22	.33	.77
Regulating strategies	.69*	.72	2.25	2.03

*$p < .001$.

Table 3. *Means and Standard Deviations of Strategy Use Among Students With Learning Disabilities (SLD) and Without Learning Disabilities (SWOLD) Reading Expository Text*

	SLD		**SWOLD**	
Strategy Use	*M*	*SD*	*M*	*SD*
Cognitive strategies	10.77**	1.58	10.03	2.75
Metacognitive strategies	9.46*	5.89	15.52	5.69
Rehearsal cognitive strategies	10.54*	1.39	8.71	1.66
Elaboration cognitive strategies	.23*	.50	1.33	2.26
Planning metacognitive strategies	.02*	.13	.54	1.18
Monitoring metacognitive strategies	1.82*	1.86	8.56	2.79
Regulating strategies	6.43**	4.29	7.62	5.35

*$p < .001$, **nonsignificant.

Differences Within SLD and SWOLD Groups in Strategy Use in Narrative and Expository Texts

Paired-samples *t*-tests were conducted in order to evaluate differences within the groups of students with and without learning disabilities in strategy use when reading a narrative and an expository text (see Figures 1-7).

Figure 1. **Overall cognitive strategy use in narrative and expository text.**

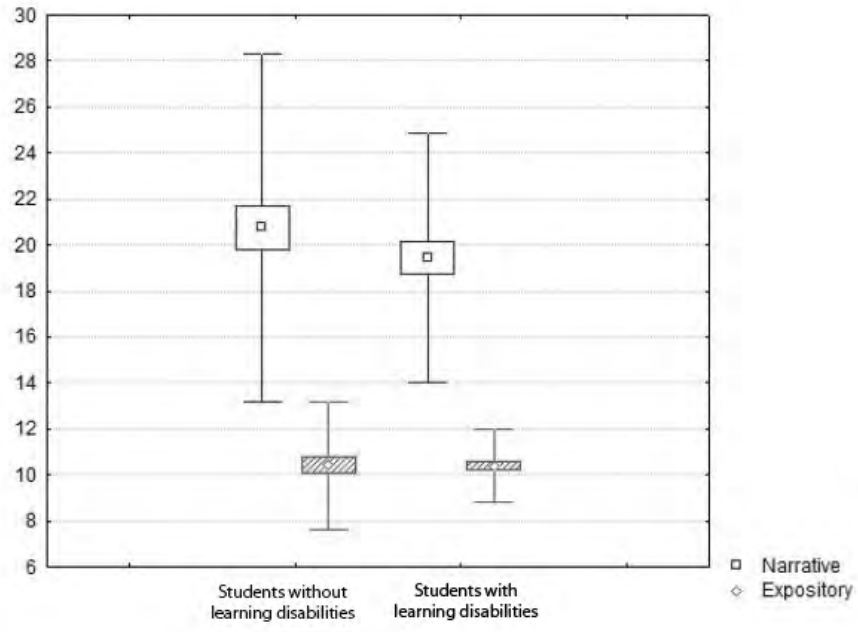


Figure 2. **Rehearsal cognitive strategy use in narrative and expository text**.

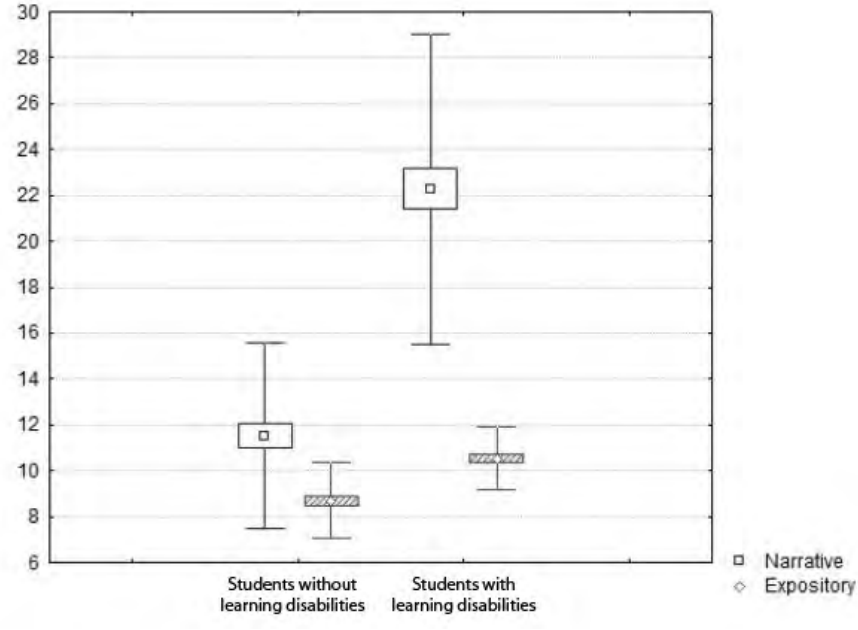


Figure 3. **Elaboration cognitive strategy use in narrative and expository text.**

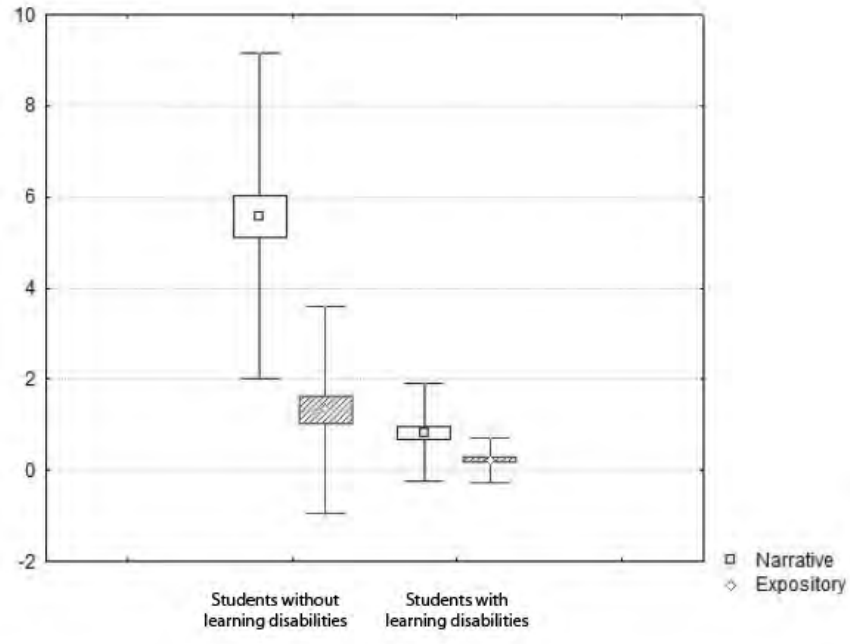


Figure 4. **Overall metacognitive strategy use in narrative and expository text**

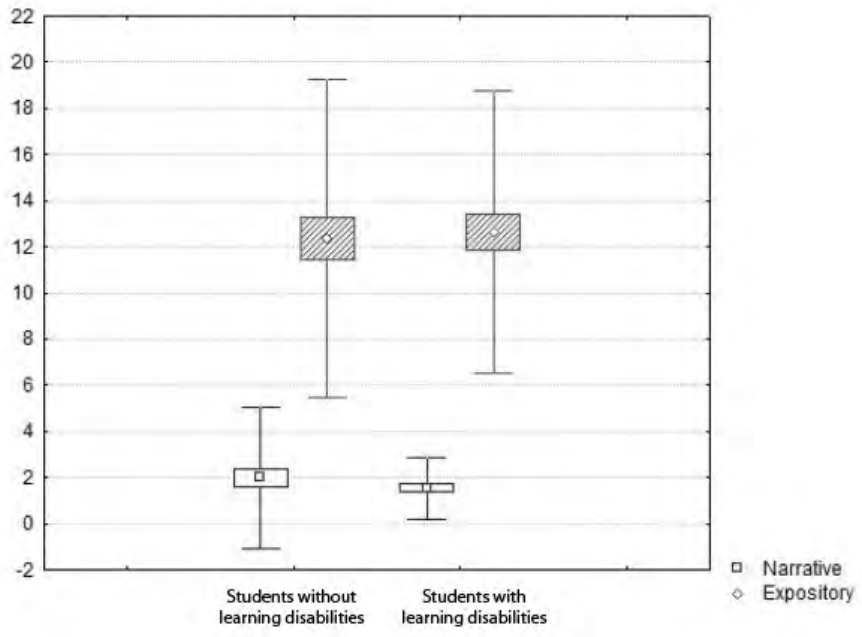


Figure 5. **Planning metacognitive strategy use in narrative and expository text.**

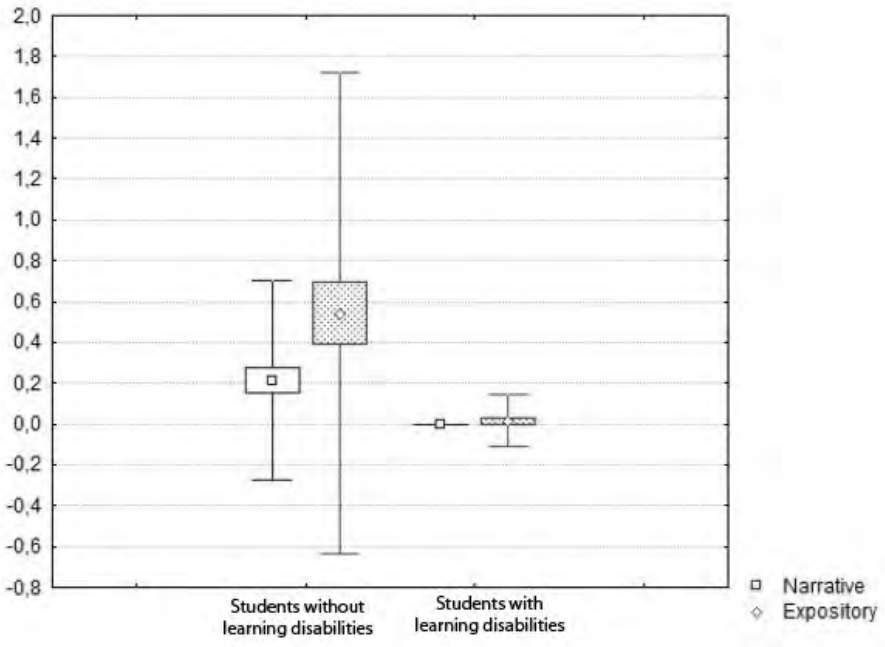


Figure 6. **Monitoring metacognitive strategy use in narrative and expository text.**

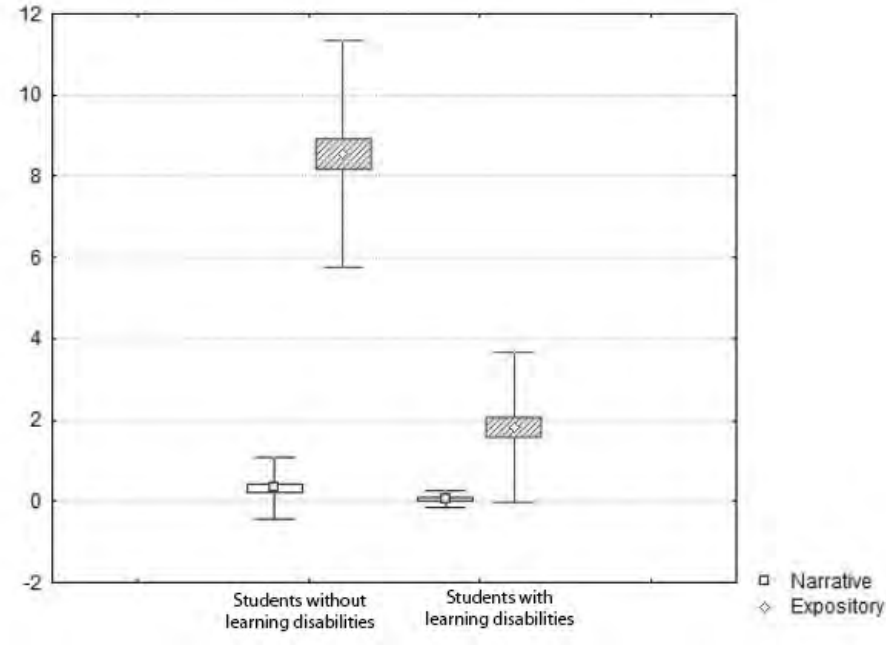
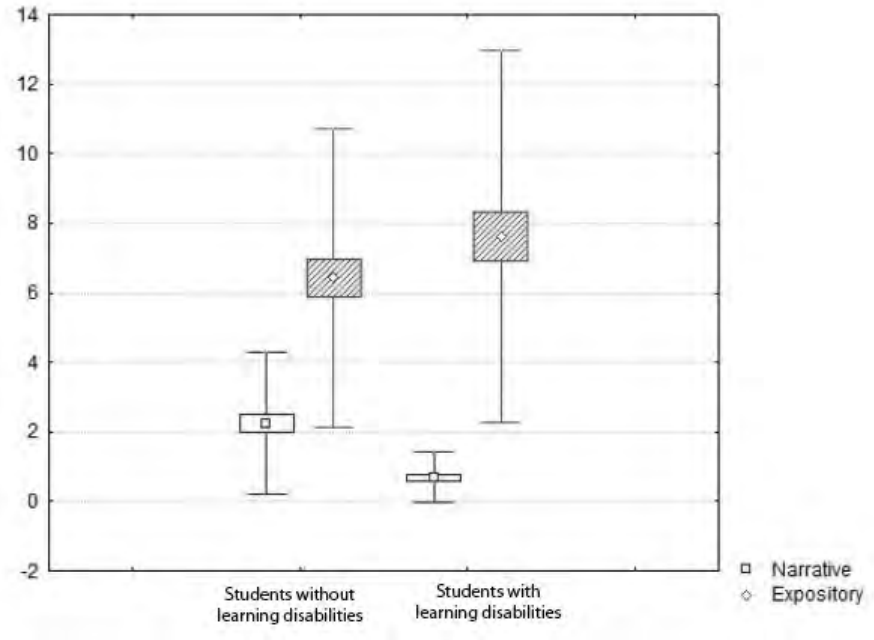


Figure 7. **Regulating metacognitive strategy use in narrative and expository text.**



The results of the paired-samples *t*-tests revealed significant mean differences in cognitive, metacognitive, rehearsal, elaboration, planning, monitoring, and regulating strategy use in narrative and expository texts in the group of SLD. The means, standard deviations, *t* scores, and significance are presented in Table 4.

Table 4. ***Mean Differences, t Scores, and Significance in the Strategy Use of SLD in Narrative and Expository Texts***

	Narrative		Expository				
Strategies	*M*	*SD*	*M*	SD	t	df	sig.
Cognitive	23.10	6.59	10.78	1.59	13.747	60	.0001
Metacognitive	.74	.75	9.46	5.89	-12.293	60	.0001
Rehearsal	22.28	6.77	10.54	1.39	12.897	60	.0001
Elaboration	.82	1.07	.23	.50	4.507	60	.0001
Planning	.00	.00	.02	.13	-1.000	60	.321
Monitoring	.05	.22	1.82	1.86	-7.343	60	.0001
Regulating	.69	.72	7.62	5.35	-10.405	60	.0001

As for the group of SWOLD, the paired-samples *t*-test analyses revealed significant mean differences in all types of strategy use in narrative and expository texts. Thus, as shown in Table 5, significant differences were found in cognitive, metacognitive, rehearsal, elaboration, planning, monitoring, and regulating strategies.

Table 5. ***Mean Differences, t Scores, and Significance in Strategy Use of SWOLD in Narrative and Expository Texts***

	Narrative		Expository				
Strategies	M	SD	M	SD	t	df	sig.
Cognitive	17.10	5.06	10.03	2.75	13.929	60	.0001
Metacognitive	2.79	2.92	15.52	5.69	-21.921	60	.0001
Rehearsal	11.52	4.07	8.70	1.66	5.480	60	.0001
Elaboration	5.57	3.58	1.33	2.26	17.840	60	.0001
Planning	.21	.49	.54	1.18	-2.713	60	.009
Monitoring	.33	.79	8.56	2.79	-24.564	60	.0001
Regulating	2.25	2.03	6.43	4.29	-7.861	60	.0001

Differences in Reading Comprehension Performance

A paired-samples *t*-test was conducted in order to determine whether reading comprehension performance was higher or lower in narrative or expository text within two reading ability groups. In the SLD group, the reading comprehension performance mean for narrative text ($M_{SLD\text{-}N} = 2.54$, $SD_{SLD\text{-}N} = 2.25$) was significantly higher than the mean for expository text ($M_{SLD\text{-}E} = 1.28$, $SD_{SLD\text{-}E} = 1.13$), $t(60) = 5.664$, $p = .0001$. The reading comprehension mean of SWOLD for narrative text ($M_{SWOLD\text{-}N} = 6.02$, $SD_{SWOLD\text{-}N} = 1.54$) was significantly higher than for narrative text ($M_{SWOLD\text{-}E} = 4.56$, $SD_{SWOLD\text{-}E} = 1.22$), $t(60) = 8.527$, $p = .0001$.

Reading Comprehension and Strategy Use

Multiple-regression analyses (one for each type of text) were conducted for each reading ability group (SLD and SWOLD) in order to evaluate how well strategy use explained reading comprehension performance. For SLD, strategy use explained 33.1% of the reading comprehension performance of narrative text. Their linear combination of strategies was significantly related to reading comprehension performance, $F(5,60) = 3.695$, $p < .001$; the best predictor was monitoring strategy use, which alone explained 26.9% of reading comprehension performance, $F(1,60) = 6.522$, $p < .001$.

For the SWOLD group, the results of a multiple-regression analysis suggested that strategy use explained 50.2% of reading comprehension performance in narrative text, $F(5,60) = 6.039$, $p < .001$. The best predictor of reading comprehension

performance was monitoring strategy use, which explained 35.7% of reading comprehension's performance, $F(1,60) = 17.670$, $p < .001$.

Multiple-regression analyses were also conducted in order to evaluate how well strategies use explained the reading comprehension performance in expository text. For the SLD group, strategy use explained *59.5%* of reading comprehension performance in expository text reading, $F(5,60) = 9.800$, $p < .001$. The best predictor was monitoring strategy use, which explained *55.9%* of reading comprehension performance, $F(1,60) = 26.359$, $p < .00$.

For the SWOLD group, strategy use explained almost 38% of reading comprehension performance of expository text reading, $F(5,60) = 4.342$, $p < .001$. The best predictor of reading comprehension of expository text was monitoring strategy use, which explained a 27.4% of reading comprehension performance, $F(1,60) = 12.299$, $p < .001$.

Discussion

The aim of the present study was to investigate the cognitive and metacognitive strategy use of students with and without learning disabilities while reading narrative and expository texts. Our findings supported the claim that SLD are not strategic readers in general. Specifically, compared to SWOLD, they use significantly fewer strategies while reading narratives. They use more "surface" processing rehearsal cognitive strategies, such as lookbacks and rereading, and less "deep" processing strategies, such as answering questions and comparing concepts (Botsas & Padeliadu, 2000; Klingner, Vaughn, & Boardman, 2007; Pressley & Gaskins, 2006). Although some researchers note that reprocessing strategies (like active rereading) may be more effective than "deeper" processing strategies like summarizing and text outlining (Alfassi, 2004; McNamara, 2001), this was not proven in the current study for SLD. Plausible explanations may be either the inactive and ineffective way in which SLD are rereading and looking back in a text or the number of prerequisites (fluent reading and active prior knowledge) needed in order for those strategies to be effective (Cohen, 2014; Millis & King, 2001).

The same profile appeared in metacognitive strategy use, as SLD used fewer monitoring and regulating strategies and no planning strategies, while their typical classmates used significantly more metacognitive ones (see Berkeley et al., 2010, for a meta-analysis).

Metacomprehension Profiles of Students With and Without Learning Disabilities

The maladaptive profile was the reason for the low reading comprehension performance of SLD. Thus, their narrow and poor strategy repertoire could not support their reading comprehension effort. SLD cannot rely on their "surface" processing cognitive strategies and limited elaboration and metacognitive strategies. Unlike them, typical readers can overcome any problem, inconsistency, or ambiguity encountered in narrative text, using their comprehensive, up-to-date, and rich repertoire of cognitive and metacognitive strategies. Thus, their high reading comprehension performance was usually the result of elaborative and strategic processing of text.

Various studies have documented the difficulty of expository texts compared to narrative texts for all students (Abadiano &Turner, 2002; Best et al., 2008;

Saenz &Fuchs, 2002). Factors such as organization structure, information density, and vocabulary have been proposed as the causes of this difficulty. The comprehension difficulty in reading expository texts may "force" students to act in a more strategic and elaborative way. For example, actions and strategies such as prior knowledge activation, use of morphological and syntactical cues, and drawing inferences may be used in order to extract meaning from informational texts.

However, SLD – owing to a rather poor and ineffective repertoire of cognitive and metacognitive strategies – cannot overcome reading comprehension problems or difficulties. They possess limited and disorganized prior knowledge about information and concepts that are highly abstract, difficult, and expressed within non-everyday vocabulary. Additionally, they do not approach the text according to a plan or specific sequence of actions (Gersten, Fuchs, & Williams, 2001; Saenz & Fuchs, 2002). Thus, Bos and Vaughn (2002) suggested that SLD have practical difficulty organizing information on their own, unable to use the interrelations found in the text to guide and support their comprehension (Hall, 2004). This profile has been connected to lower reading comprehension performance compared to SWOLD. The emerging image was consistent in two reading ability groups, whether they read and tried to comprehend a narrative or an expository text. SWOLD possessed the cognitive and metacognitive strategies to support and facilitate better and higher levels of reading comprehension compared to SLD.

Differences Within Reading Comprehension Ability Groups

Another question of the present study was whether there were differences in strategy use within groups of SLD and SWOLD.

SLD. Students with difficulties used more cognitive strategies and fewer metacognitive ones when reading a narrative text as opposed to an expository one. More specifically, they used significantly more rehearsal cognitive strategies and almost the same elaboration strategies whether they were reading narrative or expository text. It is the nature of the text that prompts students to use "surface" processing rehearsal cognitive strategies.

While they are reading a narrative text, the use of a rereading strategy could help SLD comprehend and overcome the problems they face. They can be oriented to the text's context, as they are accustomed to the textual structure of narratives, everyday vocabulary, and episodic cues. Nonetheless, the moment they read an expository text, with very abstract and difficult vocabulary, full of concepts with high density, they know that simple and inefficient strategies like rehearsal ones and "surface" processing rehearsal cognitive strategies are not helpful and, therefore, they do not use them.

Although they realize that reading an expository text demands deeper and more efficient processing served by elaboration cognitive strategies, SLD face problems when trying to use some of them. A number of assumptions based in research data concerning this conclusion have been presented. For example, it has been proposed that SLD's lack of strategies such as formulating hypotheses and managing details could be an additional difficulty to their general comprehension one (Hall, 2004). Along with their limited abilities to organize information on their own (Bos

& Vaughn, 2002) and to strategically activate and use of background knowledge (van den Broek, Rapp, & Kendeou, 2005), SLD are also unaware of their difficulty of comprehending expository texts (lack of metacognitive knowledge of strategies). Even if they realize it, they lack a wide and rich repertoire of this kind of strategies (Botsas & Padeliadu, 2003; Chamot, 2004; Sperling, Howard, Staley, & DuBois, 2004). Additionally, they do not know or do not use any elaboration strategy in an effective and flexible way, resulting in poor reading comprehension of expository texts.

SWOLD. On the contrary, SWOLD used few rehearsal cognitive strategies whether reading narrative or expository texts although significant differences were found within the group. Typically reading students possess more sophisticated and effective strategies than simple lookbacks or rereading. Their approach to narrative text does not rely on rehearsal cognitive strategies, as they can resort to and use sophisticated and efficient elaboration strategies. The organizational structure of such texts along with everyday vocabulary and minimum requirements for prior knowledge help these students to extract meaning by using "deep" processing cognitive strategies, like elaboration. Although they could efficiently use elaboration strategies while reading narratives, they realize that they cannot do the same with expository texts. It is not enough.

Expository texts have an organizational structure that makes use of semantic and syntactic cueing systems (Dymock & Nicholson, 2010; Gajria, Jitendra, Sood, & Sacks, 2007). Typical students are sensitive to the organization of superordinate and subordinate ideas and have at least average semantic and syntactic awareness (Dreher, 2002). However, the high concept density and low vocabulary familiarity prevent them from using a lot of elaboration strategies. A plausible explanation may be elementary school students' difficulty to form macrostructures for expository texts (Gajria et al., 2007; Williams, Hall, & Lauer, 2004). Those students realize that expository texts are very difficult, and they cannot benefit from cognitive strategies, so they depend on more complex, higher-level metacognitive strategies.

In the group of SLD, there was a remarkable difference between the use of monitoring and regulating metacognitive strategies while reading expository vs. narrative texts. These students realize that they have to do more and try harder than merely rereading or looking back in order to comprehend an expository text. They have to monitor and regulate their limited metacognitive abilities in order to achieve the low reading performance they managed to.

The same pattern was found in the SWOLD group, as they used significantly more monitoring and regulating strategies when reading an expository rather than a narrative text. They processed the expository text with greater attention, monitoring the flow of their comprehension and regulating and coordinating their cognitive sources (Afflerbach, Pearson, & Paris, 2008; Pressley & Hilden, 2007).

They also used a lot of metacognitive monitoring and regulating strategies while reading narratives, so they were successful at comprehending at a high level (Afflerbach et al., 2008). However, the difficulties of the expository tstructure, information embedded, and vocabulary forced them to monitor the flow of comprehension more carefully and more extensively helped by their semantic and syntactic knowledge. As they monitor and encounter inconsistencies, problems, and unknown parts, they apply more and more sophisticated regulating strategies and high-level

thinking techniques in order to overcome and fix comprehension gaps. Their wide and rich repertoire, along with their prior knowledge, can support them in such a highly demanding effort.

Expository texts are more difficult and highly demanding for all students, whether SLD or SWOLD, than narrative ones. Use of metacognitive strategies is the way that both reading ability groups try to overcome this difficulty. Although the pattern of cognitive and metacognitive strategy use of readers in the two ability groups was quite similar, the quality and the quantity of the strategies used affected their reading comprehension performance.

The multiple regressions revealed two different profiles. In the SLD group, strategy (cognitive and metacognitive) use explained a greater part of reading comprehension performance in expository text reading than in narrative text reading. A possible explanation could be that those students use a particular repertoire of cognitive and metacognitive strategies, with rehearsal cognitive strategies being central element of this profile. Although they face reading comprehension problems, they know that those strategies are not enough in the context of very difficult text such as expository ones and actually they have limited alternatives. Their prior knowledge is limited and unstructured as those students struggle for many years to acquire basic readers' abilities, failing to construct a rich knowledge base that can be accessed in a fruitful and successful way for comprehending expository texts.

In the SWOLD group the part of reading comprehension performance that was explained by cognitive and metacognitive strategy use followed a rather opposite way. Strategies used by SWOLD explained almost half of the reading comprehension performance of narrative text while they explained only the one third of performance of expository text. The process of narrative text is less demanding of prior knowledge and especially in particular technical vocabulary knowledge. That is, using "deep" processing cognitive and efficient metacognitive strategies could be the most significant factor for comprehending a narrative text. On the contrary, while reading and comprehending a more demanding expository text, SWOLD rely only in monitoring strategy use. They have to process the text in light of semantic and syntactic cues, with vocabulary that not used in every-day life and a great deal of prior knowledge. Students without learning disabilities generally possess the above strategies and knowledge to overcome or detour comprehension obstacles and inconsistencies.

In conclusion, there is quite a lot of evidence to suggest that expository texts are more demanding and difficult than narrative ones. Although there were significant differences between the ability groups in this study (students with and without learning disabilities), the two profiles of cognitive and metacognitive strategy use in reading narrative and expository texts were quite similar. This finding suggests that, more or less, all students process texts in the same cognitive and metacognitive way, although they act at different levels ("surface" vs. "deep" processing). This finding is consistent with the results of other studies using various ways of reading engagement (Botsas, 2012; Lau & Chan, 2003). For example, Vauras (1998) claimed that there are different developmental "routes" in the metacognitive processes of students with and without learning disabilities. Although those "routes" differ in many ways, they depend on the same procedures, like strategic approach of the text. The differences in the beginning of students' engagement with reading, along with prior knowl-

edge, and grammatical and syntactical awareness, operate additively. Those deviant "routes" gradually lead to different levels of performance as a result of the "Matthew effect" (Cain, 2009; Protopapas, Sideridis, Mouzaki, & Simos, 2011; Stanovich, 1986). This conclusion seems to be valid in reading comprehension strategy use for both narrative and expository text.

Educational Implications

Many elementary school teachers, especially in the early grades, neglect expository texts while overemphasizing narratives (Duke, 2000; Pressley, 2002). As a result, the easy structure and vocabulary of narrative texts prevail over the demanding, unfamiliar vocabulary, and high-density concepts and information of expository texts. This is the most rational explanation of the dominance of narrative over expository texts in the elementary school curriculum.

As different strategies are used either by SLD or SWOLD in order to comprehend a narrative or an expository text, the way teachers teach need to change. That is, since students use cognitive and metacognitive reading comprehension strategies differently while reading different kind of texts, teachers have to teach specific strategies explicitly. Those strategies must be applicable to and efficient for specific situations (text types), not flexible frameworks and techniques that fit to every text (Gersten et al., 2001). Targeted instruction of strategies, such as answering questions, summarizing, and so on may improve the ability of SLD to comprehend expository texts (Gajria et al., 2007; Klingner et al., 2007).

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