Improving comprehension and composition skills of third grade struggling and experienced writers: Effects of technology incorporation into explicit strategy instruction.

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Abstract

This study examines whether a multi-component reading and writing explicit strategy instruction assisted by a technological cognitive tool, named "Daphne" would increase comprehension and composition skills of 3rd grade students in primary school with or without writing difficulties. In addition, the effectiveness of the aforementioned interventional approach to the enhancement of reading and writing strategic behavior is also examined. Students were divided into struggling, average and experienced writers. Results derived from post and follow up measurements indicated that all three subcategories of experimental groups improved their writing performance and displayed strategic reading and writing behavior. Further, struggling and average writers demonstrated significant gains in reading comprehension compared to control group that received no explicit strategy instruction.

Key words: explicit strategy instruction, technology, writing difficulties.

Introduction

Όπως Writing production is a cognitive demanding task. Hayes (1996) characterizes writing as a problem-solving process that involves three kinds of mental activity: planning, drafting, and revising. Successful writing process relies upon students' metacognitive strategies that affect writers' ability to manage the overlapping mental activities of writing (Kellogg, 2008).

A considerable body of evidence suggests that students with writing difficulties demonstrate little or no metacognitive activity which reflects on their written composition (performance) and the strategies (process) they implement during writing (Santagelo, Harris, & Graham, 2007). It becomes obvious that competent student-writers display strategic behavior and this characteristic distinguishes them from students with writing difficulties. Several researchers have shown that explicit strategy instruction is an effective way of improving writing performance and process of students with or without writing difficulties (Glaser & Brunstein, 2007; De La Paz, 2005; Harris, Graham, & Mason, 2006). Explicit strategy instruction consists of teaching in small steps, modeling through working out with strategies, provision of guided practice, fading assistance and finally autonomous practice (Duffy, 2002). Self-Regulated Strategy Development (SRSD) and Cognitive Strategy Instruction Writing (CSIW) are well documented evidence based programs that follow explicit strategy instruction principles and teach struggling writers strategies for planning, revising, and composing texts as well as self- regulated procedures (Englert & Mariage, 2003; Tracy, Reid, & Graham, 2009).

On the other hand, a great body of research has stressed the features of technology that constitute it a powerful instructional tool due to: 1) the active cognitive procession in multiple channels (Mayer & Moreno, 2002), 2) the reduction of cognitive load (Mayer & Moreno, 2003), 3) the reinforcement of students' motive through the use of pedagogical agents

(Moreno, Mayer, & Lester, 2001), 4) the mnemonic support and self-regulatory guidance through the provision of procedural facilitation (Englert, Wu, & Zhao, 2005) and 5) the provision of an intellectual partnership between tool and students which could be conceived as an interaction that constitutes a zone of proximal development (Salomon, Perkins, & Globerson, 1991). In the light of the above, technology could provide a supporting learning environment for students with or without learning difficulties (Graesser, McNamara, & VanLehn, 2005). However, effective use of technological cognitive tools relies on the wider educational context in which computer program will take place. As MacArthur (2009:94) mentioned, the impact of technological tools depends on a combination of the technology and instruction designed to foster students to take advantage of the capabilities of the technology.

Purpose of present study

The present study attempts to combine explicit strategy instruction with technology. The aim of this study is to examine the effectiveness of explicit strategy instruction delivered by a technological tool in combination with the provision of procedural facilitation offered to students with or without writing difficulties. Reading and writing performance outcomes as well as the influence of the above intervention upon both processes are also examined. For the purpose of this study an educational software, named "Daphne", was created. The name originated from the main character of the software, a pedagogical agent who acted as a model verbalizing her thoughts during demonstrating reading and writing strategies that experienced readers and writers apply. The educational software consisted of three phases. Both first and second phase referred to modeling of reading and writing processes. The third phase referred to autonomous writing through the provision of a scaffolding environment that gradually offered learning control to students. "Daphne" was also incorporated to SRSD and CSIW stages. The first author of the present study was acting as a teacher and also as a coordinator and knowledge facilitator working step by step with the students interacting with "Daphne".

Taking into consideration that reading comprehension and writing production share similar skills and knowledge as meaning construction activities (Fitzgerald & Shanaham, 2000; Olson, 2006) cognitive and metacognitive strategies of reading and writing process have been chosen to be taught for the purpose of this study. In this way we anticipated that students would exchange reader's and writer's role and applied a wide repertoire of strategies during constructing meaning.

Methodology

Sample and Design

The study involved a quasi-experimental pretest, posttest, follow-up test design under two conditions. Seventy-three 3rd grade students constituted the sample of the present study. 37 students formed the experimental group. Nine were struggling writers, twenty-one were average writers and seven were experienced writers. On the other hand, thirty-six students formed the control group. Nine were struggling writers, fifteen were average writers and twelve were experienced writers. Students were divided into the aforementioned three subcategories: struggling, average and experienced writers based on criteria that were set by researcher. Specifically, struggling writers were considered students who scored at or below 25% on tasks regarding story structure, quantitative and qualitative (holistic) characteristics (Glaser & Brunstein, 2007; Saddler & Graham, 2007). Average writers were considered students who scored from 25% to 75% and experienced writers were considered students who scored at or above 75%.

Experimental group received explicit strategy instruction delivered by "Daphne" and the researcher as well. Strategy instruction was delivered in two sessions per week, each consisting of two 45-min lessons through 3 ½ month period. Control students were instructed

by their regular teachers who did not include any strategy instruction in their teaching. Pre- and posttest assessments were administered 2 $^{1/2}$ weeks before and 4 days after the completion of instruction. The follow up measurements were administered 4 months after post-testing.

Description of strategies' intervention conditions

Educational software Daphne was incorporated into CSIW and SRSD approach stages: Initial conference, Discuss it, Model it, Memorize it, Shared practice, Autonomous practice and Reflection. First reading strategies and afterwards writing strategies were delivered to experimental group. *Initial conference and discussion:* Detection of student's prior knowledge. The researcher was writing down in the first column of the KWL chart (Know, Want to know, Learned) students' beliefs regarding reading comprehension process and structural elements of a narrative text. Afterwards, the researcher was writing down students' beliefs regarding writing production and structure of narration. *Modeling:* Daphne was acting as a thinking aloud model displaying reading and writing strategies, providing the necessary metacognitive knowledge and demonstrating self-regulation procedures. The following strategies were displayed: *Reading Strategies*: 1) previewing title and making predictions, 2) constructing a story map, 3) highlighting structural elements by generating self-questions, 5) writing down structural elements into graphical representations of the story map, 6) monitoring and self-reflecting about the reading comprehension process. *Writing Strategies:* 1) considering the needs of the audience, 2) defining the purpose of writing 3) constructing a story map, 4) generating ideas stemmed by questions of story map, 5) transforming ideas into text, 7) revising the text, 8) monitoring and self-reflecting of the writing process. *Discussion:* students' initial beliefs regarding reading and writing processes were compared to processes that had been demonstrated by 'Daphne'. Students were prompted to commit themselves that they were willing to know new and effective reading and writing strategies by putting their signature into the second column of KWL chart. *Memorizing:* Students were impelled to repeat the reading and the writing strategies until they memorized them. Then strategies had been written down in student's own words. *Share practice:* Students in pairs were collaborating and executing reading strategies and finally were composing a story under the same title with the story that they had previously comprehended. The researcher cooperated with teams providing assistance. Students were prompted to discuss about the reading and writing strategies they had applied as well as about the role of the reader and the writer they had adopted in each case. The researcher prompted students to compare reading and writing strategies and find similarities between the two processes. *Autonomous practice:* Students were required to apply reading and writing strategies during comprehending and composing a story. The researcher provided assistance upon request. Students in pairs were required to compose a story using the third phase of educational software "Daphne". During the writing endeavor the software provided procedural facilitation upon request. Students were prompted to self - monitor and self - evaluate through the provision of icons-cues and evaluation lists. *Reflection:* Students were urged to reflect on their reading comprehension process as well as process of writing. Newly acquired knowledge was written down by the researcher into the third column of KWL chart. Students were comparing their initial responses to the newly acquired ones.

Provision of procedural facilitation and students' interaction in pairs.

Procedural facilitation in the form of cue-cards was provided for each student pair. In terms of reading comprehension process, procedural facilitation comprised: a) a sheet of making predictions, b) a story map (graphic organizer) in which the structural elements of the narrative were depicted, c) a mnemonic chart, d) a sheet in which a schematized reading process was portrayed, and e) a self-evaluation card. Students by turns made predictions,

generated self-questions (who? where? etc.), highlighted and wrote down in the story map the structural elements of the text.

In terms of writing process, procedural facilitation comprised: 1) cards referring to the needs of the audience and to the purpose of writing, 2) a story map, 3) cards with cues concerning generation of ideas, 3) cards with questions and word banks concerning elaboration of initial ideas, 4) a sheet with cues for ideas organization, 5) a self evaluation sheet, 6) a sheet in which a schematized writing process was depicted. Students in turns identified the needs of the audience, set the purpose of their writing, generated ideas, wrote their ideas down to the graphical representation of story map, and elaborated their initial ideas by choosing alternative forms of word banks which were provided. Furthermore, pairs of students interacted exchanging roles of author and secretary as well as roles of writer and reader. Finally, students were prompted to apply self-monitor and self-evaluation procedures by indicating the stages they passed through writing production in a schematized reading and writing process and by ticking self-evaluation sheet as well.

Procedural facilitation provided by educational software "Daphne"

"Daphne" provided procedural facilitation to students upon request. The aforementioned procedural facilitation was cards consisted of questions, cues and word banks. Specifically, the provided assistance was about 1) audience 2) goal setting 3) ideas generation (Icon 1) 4) ideas organization, 5) elaboration of ideas (icon 1), 6) revision and checking of meaning, coherence and of story structure (Icon 2). In all three phases of educational software, icons-cues below the screen signaled each stage of reading and writing processes. In this way students were fostered to self- monitor and self -regulate, as they had been aware of what had been done and what will be followed.

Icon 1. Assistance about ideas generation

Icon 2. Assistance about revision Measures

Reading comprehension

An adaptation of the Test for Reading Performance (TOPR) was used to evaluate students' text comprehension skills. The comprehension assessment included 2 passages of ascending length and text complexity that were followed by 8 multiple choice questions. Students were asked to read each passage aloud and then to answer all the questions following each passage. Students were allowed to look at the passages while answering the questions. The total number of questions for the two passages was 8 and each was scored with 0 (for inaccurate answer) or 1 (for accurate answer).

Writing performance

Students were asked to write a story that they have lived and known a lot about it. There was no time limit for the completion of the story. Two independent raters unfamiliar with the purpose of the study scored students' writing as far as story, grammar, qualitative and quantitative features were concerned. For each testing period interscorer reliability was found to be greater than .90

Story structure

The inclusion and quality of the structural elements of story were assessed as follows: a score of 0 was assigned if the structural element was not present, a score of 1 was assigned if it was present, a score of 2 was assigned if it was elaborated and a score of 3 was assigned if it was elaborated in depth. Scores could range from 0 to 23 points. The scores of the two raters were averaged.

Story's qualitative (holistic) features

The scores concerning the qualitative (holistic) features referred to the originality, coherence, sentence structure and word choice. Specifically, scores for originality ranged from 0 to 2 points, scores for coherence ranged from 1 to 3 points, scores for sentence structure ranged from 1 to 3 points and scores word choices ranged from 0 to 6 points.

Story's quantitative features

To obtain a measure of story length the two raters counted the number of words, of sentences, of heroes, of episodes and of events.

Reading-strategy performance

Retrieved and used reading strategies were assessed by observation conducted by the researcher. During reading a narrative text the researcher was checking a list. The presence of strategy was assigned with 1 point whereas the absence of it was assigned with 0 point. The following reading strategies were observed: a) reading the title, b) highlighting important parts, c) constructing a graphic organizer (story map for reading) d) writing important parts down on graphic organizer. All the above-mentioned variables were added in one total score ranging from 0 to 5 which constituted the reading-strategy performance.

Writing-strategy performance

Retrieved and used writing strategies were assessed by observation conducted by the researcher. During story composition the researcher was checking a list. The presence of strategy was assigned with 1 point whether the absence of it was assigned with 0 point. The following writing strategies were observed: a) constructing a graphic organizer (story map for writing), b) rereading during writing, c)rereading after writing completion, d) checking/correcting, e) highlighting important parts. All the above-mentioned variables were added in one total score ranging from 0 to 5 which constituted the writing-strategy performance.

Results

Writing quality

Measures for writing performance were tested for significant differences between experimental and control groups using multiple analysis of variance (MANOVA) during pre, post and follow up testing. Means (M), standard deviations (SD) concerning the three writing parameters that constitute writing quality for three subcategories of students are shown in table 1.

Table 1. ***Means (M) and standard deviation (SD), of writing features for three subcategories of experimental and control group students***

		Struggling writers	Average writers	Experienced Writers
		M (*SD*)	*M* (*SD*)	*M* (*SD*)
Quantitative features				
Pre test	Experimental group	77.89 (30.52)	129.21 (18.87)	200.29 (36.60)
	Control group	69.72 (28.80)	112.60 (24.23)	232.92 (71.00)
Post test	Experimental group	175.83 (31.73)	212.62 (77.62)	239.86 (50.00)
	Control group	92.00 (47.31)	204.13 (106.13)	212.63 (90.09)
Follow up test	Experimental group	202.56 (66.76)	282.89 (117.32)	295.42 (86.65)
	Control group	143.00 (78.39)	200.92 (83.77)	177.32 (53.97)
Story structure				
Pre test	Experimental group	4.00 (1.84)	5.17 (1.62)	6.00 (2.83)
	Control group	3.33 (2.33)	5.93 (1.66)	6.50 (2.77)
Post test	Experimental group	12.67 (1.93)	11.67 (4.48)	13.43 (3.94)
	Control group	4.31 (1.87)	7.17 (2.50)	7.96 (2.47)
Follow up test	Experimental group	8.31 (1.38)	11.24 (4.28)	10.83 (4.16)

	Control group	4.33 (1.94)	6.88 (3.03)	6.68 (2.69)
Holistic features				
Pre test	Experimental group	3.17 (1.46)	5.48 (2.08)	6.86 (1.93)
	Control group	3.39 (2.43)	5.53 (1.70)	6.37 (2.51)
Post test	Experimental group	9.67 (1.77)	8.38 (2.74)	10.57 (2.26)
	Control group	4.00 (2.27)	7.07 (1.83)	7.29 (2.68)
Follow up test	Experimental group	6.81 (1.03)	8.84 (2.83)	8.92 (2.82)
	Control group	4.94 (2.79)	7.75 (2.58)	6.36 (2.70)

Not statistically significant differences were found at pre test between experimental and control group neither for struggling writers (Wilks' Λ = .914, $F_{1,16}$ = .438, *ns*, η^2_p = .086), nor for average writers (Wilks' Λ = .909, $F_{1,34}$ = 1.066, *ns*, η^2_p = .091) neither for experienced writers (Wilks' Λ = .858, $F_{1,17}$ = .827, *ns*, η^2_p = .142). Post test results revealed that struggling writers of experimental group demonstrated greater gain scores than control group after program's implementation in all three writing parameters: quantitative features (F = 18.820, p<.001, η^2_p = .556), story grammar (F = 81.402, p<.001, η^2_p = .844), qualitative features (F = 33.443, p<.001, η^2_p = .690) that constitute writing quality.

Moreover, post test results revealed that experimental group outperformed control group mainly on story grammar as far as average (F = 12.345, p<.001, η^2_p = .266) and experienced writers (F= 14.017, p<.01, n^2_p=.452) are concerned.

Looking at the long term effects of the implementation program, results emerging from follow up measurement indicated statistically significant differences mainly on story grammar as far as struggling writers (F = 23.141, p<.001, η^2_p = .607), average writers (F = 9.432, p<.01, η^2_p = .245) and experienced writers (F = 6.334, p<.05, η^2_p = .607) are concerned.

Reading comprehension

Table 2 summarizes the outcome of reading comprehension measurement. As illustrated in the following table there were no statistically significant differences between experimental and control group at pre-test. At post test struggling (p< .05) and average writers (p<.05) of experimental group outperformed control students. Moreover, struggling writers of experimental group maintained the statistically significant difference at follow up test (p<.05).

Table 2. Means (M), standard deviation (SD), differences (t-values) statistical significance (p) on reading comprehension (TORP) of experimental and control group

Students' subcategories	Experimental group *M* (*SD*)	Control group *M* (*SD*)	*t*	*p*
Struggling writers				
Pre test	0.41 (0.15)	0.32 (0.23)	1.487	.157
Post test	0.71 (0.23)	0.46 (0.27)	2.121	.050
Follow up test	0.69 (0.29)	0.38 (0.23)	2.588	.020
Average writers				
Pre test	0.43 (0.17)	0.38 (0.16)	.751	.458
Post test	0.73 (0.25)	0.55 (0.26)	2.078	.045
Follow up test	0.64 (0.29)	0.57 (0.33)	.728	.471
Experienced writers				
Pre test	0.55 (0.12)	0.47 (0.21)	.981	.340
Post test	0.73 (0.13)	0.63 (0.17)	1.434	.170
Follow up test	0.59 (0.28)	0.53 (0.29)	.425	.676

Reading - strategy performance

As illustrated in the following table 3 there were no statistically significant differences between experimental and control group at pre test. All three subcategories of students of experimental group demonstrated greater gain scores in reading strategy performance than control group after the program's implementation. Moreover, as far as long-term effect is concerned statistically significant differences were maintained for experimental group in comparison to control group.

Table 3. Means (*M*), standard deviation (*SD*) differences (*t*-values) of reading strategies between experimental and control group

Reading strategies	Experimental group *M* (*SD*)	Control group *M* (*SD*)	*t*	*p*
Struggling writers				
Pre test	0.56 (0.53)	0.11 (0.33)	2.138	.070
Post test	3.67 (0.71)	0.33 (0.50)	11.547***	.000
Follow up	2.50 (0.93)	0.44 (0.73)	5.048***	.000
Average writers				
Pre test	0.43 (0.51)	0.47 (0.52)	-.221	.813
Post test	3.19 (1.03)	0.40 (0.51)	10.724***	.000
Follow up	2.42 (1.07)	0.40 (0.63)	6.852***	.000
Experienced writers				
Pre test	0.43 (0.53)	0.58 (0.67)	-.554	.645
Post test	3.71 (0.49)	0.67 (0.65)	10.702***	.000
Follow up	3.00 (0.63)	0.50 (0.67)	7.559***	.000

* $p<.05$, ** $p<.01$, *** $p<.001$

Writing –strategy performance

As far as writing-strategy performance is concerned there were statistically no significant differences between experimental and control group at pre measurement. The difference in writing-strategy performance between experimental and control group's subcategories of students was statistically significant in post test results (p<001). Moreover, all subcategories of students in experimental group kept demonstrating grater gains scores in comparison to control in follow up measurement (p<001) as illustrated in table 4.

Table 4. Means (*M*), standard deviation (*SD*) differences (*t*-values) of writing strategies between experimental and control group

Writing Strategies	Experimental Group *M* (*SD*)	Control Group *M* (*SD*)	*t*	*p*
Struggling writers				
Pre test	0.56 (0.53)	0.78 (0.83)	-.676	.509
Post test	3.78 (0.83)	1.00 (1.00)	6.402***	.000
Follow up	2.50 (0.76)	0.89 (0.78)	4.307***	.001
Average writers				
Pre test	1.00 (0.95)	0.93 (0.59)	.240	.812
Post test	2.86 (1.28)	1.00 (0.53)	5.975***	.000
Follow up	2.47 (0.90)	1.42 (0.79)	3.317**	.002
Experienced writers				
Pre test	0.86 (0.69)	1.00 (0.95)	-.345	.734
Post test	3.86 (1.07)	1.08 (0.90)	6.055***	.000
Follow up	3.00 (1.10)	1.55 (0.69)	3.389**	.004

* $p<.05$, ** $p<.01$, *** $p<.001$

Discussion

The aim of present study was to enhance the quality of writing performance and the reading comprehension as well as to cultivate reading and writing strategic behavior through the implementation of an explicit strategy instruction program delivered by an educational software, named Daphne, combined with the provision of procedural facilitation by "Daphne' and the researcher as well.

The study's findings' pattern suggests that the incorporation of a technological, cognitive tool into a strategy instruction package could lead to a scaffolding environment that produces incremental effects to student's reading comprehension skills and writing achievement. Furthermore, such an approach seems to facilitate strategic behavior of struggling and experienced writers. Taking into account that high and low achieving students profit from strategy-oriented instruction enriched by technology, allows us to argue that this is a promising interventional approach for the improvement of reading and writing competence and process of all students in regular classroom (De La Paz & Graham, 2002). More specifically:

Firstly, as far as the writing performance is concerned findings indicate that all three subcategories of students produced compositions with better quality and more complete story grammar after the implementation of program. So, we could claim that explicit strategy instruction could be applied to general schools setting successfully catering for different educational needs. Looking each subcategory per se findings indicate that struggling writers outperformed control group and furthermore their performance was consisted with average and experienced writer's performance. This finding leads us to the conclusion that the effect of explicit strategy instruction was powerful enough to minimize the gap of performance among struggling, average and experienced writers. Moreover, the fact that the improvement of story structure was the feature that all subcategories of students maintained at follow up measurement supports other studies' results which claim that teaching story structure fosters knowledge of structural elements reflecting on the quality of produced texts (Roth, 2000). Furthermore, the combination of story structure instruction with graphic organizer seems to foster struggling writers to construct the mental representation of the text and realize the relationship among structural elements and consequently incorporate them into their texts (Sturm & Rankin-Erickson, 2002).

Taking into consideration several studies' outcomes concerning the impact of procedural facilitation on writing performance provided by teacher (Baker et al, 2003) and by technological tools as well (Reiser, 2004) the present study confirms the positive impact of technology incorporation into instruction.

Secondly, concerning reading comprehension, the outcomes of this study indicate that struggling and average writers displayed greater gain scores in comparison to control group in post measurement. The aforementioned outcome confirmed other studies' findings that highlight the positive effect of explicit strategy instruction to reading comprehension competence of students with learning difficulties (Antoniou & Soulvingier, 2007). Moreover, explicit instruction that focused on text structure led to great gains in comprehension skills mostly for student with writing difficulties (Williams, 2005).

Furthermore, the findings of the present study consist of the results reported in other studies that stressed the effectiveness of computer-assisted strategy instruction on reading comprehension (Hall, Hughes & Filbert, 2000) and indicated the fruitful combination of technology and teacher's feedback on reading comprehension (Kim et al, 2006).

Thirdly, regarding writing-strategy performance findings indicate that intervention program encourages all three subcategories of students to apply planning and revising strategies. More specifically, in comparison to control group struggling writers demonstrated significant gain scores that were maintained at the follow up measurement. The aforementioned findings indicate the transfer of struggling writers from knowledge telling to

knowledge transforming model (Bereiter & Scardamalia, 1987). Moreover, they confirm that explicit strategy instruction is well suited for addressing the needs of students with writing difficulties and promotes skills' mastery (Graham & Harris, 2003).

Fourthly, results concerning reading-strategy performance indicate that specific strategy instruction can foster students with or without writing difficulties to make use of higher-order skills during comprehension process. Teaching a package of strategies provided students with a well structured reading plan that enhanced them to internalize a working routine of reading process (Souvignier & Mokhlesgerami, 2006) and display reading strategies autonomously. Furthermore, we could support that procedural facilitation provided by a technological cognitive tool fostered students to realize and internalize mental function of reading and writing process and this was reflected on their strategic behavior.

Consequently, based on the aforementioned findings in terms of reading and writing strategy-performance the present study confirmed literature findings indicating that computerized intellectual partnership fostered skills and strategies developed through the use of technology due to a cognitive residue that left behind (Salomon et al, 1991). In light of the above, educational software "Daphne" incorporated into explicit strategy instruction helped students to internalize cognitive operations of reading and writing processes and thus demonstrate strategic performance and display better reading and writing achievement within their zone of proximal development.

Implications for educational practice

The study highlights important implications with practical value in classroom settings since it has demonstrated that students struggling writers as well average and experienced writers can benefit from explicit strategy instruction and develop metacognitive skills and display successful writing and reading competence.

Moreover, the study stresses the importance of teaching a package of multiple strategies so as to foster students to internalize a plan of action and thus demonstrate strategic reading and writing performance. Furthermore, the integrated reading-writing instruction through the combination of reading and writing strategies provides opportunities to students to realize the parallel and complementary nature of reading and writing processes for meaningful construction of a text. In this way students become able to adapt skills from one area to the other via discussion of their complementary roles and responsibilities as readers and writers.

Finally, in order for the aforementioned findings to be put into practice in a constructivist learning environment, it is necessary for teachers to be trained on explicit strategy instruction as well as on how to incorporate technological tools into their teaching agenda.

Limitations

Firstly, because the present intervention program consisted of a set of interdependent procedures it has been difficult to determine and to what degree the entire program or some specific procedures led to a successful outcome.

Moreover, the added value of peer assisted learning has not been tested. A further research would be worth conducting so as to illuminate the quality of peer assisted learning among students with different competences and needs.

Furthermore, it would be appropriate to investigate whether strategy instruction in narrative text could lead to the generalization of outcomes across different text genres such us descriptive texts.

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