A comparison of text structure and self-regulated strategy instruction for elementary school students’ writing

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Abstract

Purpose – This study aims to examine the writing outcomes of 6th-grade students learning English as a second language.

Design/methodology/approach – In all 45 students in a text structure instruction (TSI) group were compared with 45 students in a self-regulated strategy instruction (SRSI) group and 43 students receiving traditional writing instruction. SRSI was adapted from the self-regulated strategy development (SRSD) model (MacArthur et al., 2015). The SRSD model includes self-regulation writing strategies, text and genre knowledge and think-aloud modeling. Findings allowed for a comparison of TSI and SRSI, in which organization knowledge does not need to be taught using SRSD methods. Measures of writing outcomes, including writing quality and summarization of main ideas, were administered after a one-month intervention.

Findings – Results revealed that, compared with traditional instruction, the TSI and SRSI groups each exhibited better writing outcomes. Compared with the traditional instruction group, each technique had a unique impact: SRSI on writing quality, and TSI on main ideas included in written summaries. Linguistic and textual analyses of students’ writing revealed that the TSI and SRSI group learners both demonstrated high syntactic complexity, content organization and lexical variation in their compositions.

Research limitations/implications – The present study provides empirical evidence that explicit teaching of SRSI writing strategies or TSI can be implemented effectively and elicit gains in elementary school L2 learners’ written output. A clear division does not exist between self-regulated writing strategies and text structure knowledge; the two techniques should be complementary, as suggested in the earlier SRSD model.

Originality/value – Classroom-based research has addressed the need to enhance self-regulated capacity in writing. However, writing has become more challenging for primary school learners. In addition, writing is a cognitively demanding process. The plethora of processes involved in writing may be one of the factors that caused difficulties in writing. Thus, writing proficiency relies on the development of text structure knowledge and the fostering of self-regulation capabilities.

Keywords Self-regulation, Text structure, Writing instruction, Writing outcomes

Paper type Research paper

Introduction

Writing plays a pivotal role in helping elementary school learners achieve academic success, leading to entrance into an academic community and the workforce later in life. Unfortunately, a large number of upper-grade elementary school students are underprepared for English writing. For student writers, learning to write involves more than mastering a complex array of language skills. These writers must understand the importance of planning, monitoring, and evaluating various writing-related tasks (Teng, 2019a, 2019b; Tracy et al., 2009). Young
learners may struggle to communicate their ideas in writing (Koutsoftas, 2018); for example, young learners who reach upper elementary school may still find it difficult to acquire essential knowledge about writing. This can result in frustration, lack of motivation, and attitudinal problems leading to failure.

Many young L2 learners also do not develop writing skills on par with their L1 grade level counterparts (Nation, 2008). L2 students may thus experience writing-related anxiety. Learning to write is not simply a matter of mastering content (e.g. learning how to draft a coherent paragraph); writers must also master the self, such as learning how to manage writing tasks. Elementary L2 learners may lack interest in and attention to writing because writing is primarily considered a testing tool. (Lo and Hyland, 2007; Pinter, 2017).

Approaches to teaching L2 writing in elementary school tend to minimize prediction, planning, organization, and metacognitive control (Bai, 2015); this discrepancy highlights the need to involve L2 learners in identifying goals, understanding text structures, monitoring progress, measuring performance, and deciding how to address problems in their writing (Lee, 2016; Teng and Huang, 2018). Providing effective writing instruction (e.g. self-regulated strategy instruction [SRSI]) may help elementary school L2 learners achieve their writing goals by devising strategies to organize, produce, evaluate, and reformulate what they intend to write.

Classroom-based research has addressed the need to enhance learners’ self-regulated writing capacity (Teng, 2016). Based on Harris and Graham (2009), the self-regulated strategy development (SRSD) model is a pedagogical approach to writing that integrates three critical dimensions: integrating genre knowledge into the writing process, think-aloud modeling, and self-regulation. Yet because this intervention is multifaceted, it can be difficult to determine which dimensions account for learning gains (De La Paz, 2007). The SRSI approach employed in the present study emphasizes self-regulation strategies in writing tasks, such as planning, goal setting, writing management, process monitoring, and reflection. In addition, this study compared an intervention emphasizing text structure and summarization rules with an SRSI intervention without these components. Each technique focusing on text structure and self-regulation is thought to provide a comprehensive approach for elementary school students to develop writing proficiency. For example, self-regulation allows for effective management of writing processes, and text structure facilitates the transformation of structures into a hierarchical organization of text information. Despite the many studies conducted on the SRSD model (MacArthur et al., 2015), a comparison of the text structure technique and SRSI on English writing remains under-explored in primary school writing pedagogy. This innovative study provides a closer examination of the extent to which certain techniques involving text structure or SRSI may lead to desired writing outcomes in elementary school students. The purpose of this study is to ascertain which techniques account for different writing outcomes, thereby refining the SRSD model containing numerous writing techniques and theories.

**Literature review**

*Effects of text structure instruction on writing*

Text structure refers to how information within a written text is organized and helps learners understand details related to cause and effect, sequence, problems and solutions, description, and comparisons and contrast (Dymock, 2005). Test results from 151 L2 Dutch eighth graders revealed that text structure inference skills can uniquely predict expository text comprehension (Welie et al., 2017). Teaching about text structure may help learners distinguish more and less important information, which can assist them in remembering
text information (Welie et al., 2017). Reynolds and Perin (2009) explored the role of text structure knowledge in writing among 121 L1 secondary school students in Canada. Results showed that two experimental groups (receiving either text structure knowledge instruction or SRSD) performed better than a control group receiving traditional instruction. Kirkpatrick and Klein (2009) found similar results among 7th- and 8th-grade L1 students: learners who were taught about a compare–contrast text structure made greater gains in their writing than students who did not receive text structure training.

However, the benefits accrued from instruction around text structure for primary school L2 students’ writing require further investigation. Compared with more proficient and knowledgeable learners, L2 learners with relatively low proficiency need a higher cognitive load to process information at the word and sentence levels and to infer text structure (Welie et al., 2017). Given the writing difficulties among L2 students (Badger and White, 2000), text structure instruction (TSI) for writing literacy may play a useful role in elementary writing education.

Effects of self-regulated strategy development on writing

The SRSD model applies discourse knowledge, essay organization knowledge, self-regulation strategies, and motivation to address writing demands (Harris and Graham, 2009). Essentially, the model shows students how to use genre knowledge to set goals, organize and generate content, and evaluate and revise their writing. Discussions of the purpose and forms of genre are followed by collaborative evaluations of strong and weak examples of such writing. Teachers can also use think-aloud modeling to encourage learners to engage in rhetorical analysis. The SRSD model includes a graphic organizer with which teachers can model how to integrate writing strategies and genre knowledge (Harris and Graham, 1992; Reutzel, 2015). The core of SRSD instruction is to foster learners’ independent and effective writing by integrating genre knowledge and a self-regulated writing process for better evaluation and revision (Limpo and Alves, 2018). Researchers have examined the effects of SRSD instruction on writing. Six 5th- and 6th-grade students with different language backgrounds were involved in an early study (Sexton et al., 1998) in which they received a three-step (think, plan, and write) strategy for writing. Instruction enabled learners to develop topic sentences, present reasons to support their premise, explore the soundness of their argument, and offer a stronger conclusion to their written product. Tracy et al. (2009) divided 123 3rd-grade American students into two groups. One group was taught planning and regulating writing strategies, the writing process, writing behaviors, and the purposes and characteristics of effective writing; the other group received traditional writing instruction. Results indicated that students who received SRSD instruction wrote longer, schematically stronger, and qualitatively better stories.

In the present study, SRSI was adapted from SRSD. SRSI in this study focuses on self-regulation of writing strategies. The SRSD model includes many competing theories (e.g. affective, behavioral, cognitive, constructivist, information processing, social cognitive, memory, motivation, self-efficacy, sociocultural and sociocognitive theories). Although Sexton et al. (1998) argued that multiple theories could assist students in managing complex and challenging academic tasks, Teng (2016, 2019a) argued that students who encounter difficult academic tasks require more structured and explicit instruction regarding self-regulation strategies. In addition, the need to understand multiple theories in the SRSD model poses obstacles to L2 practitioners’ teaching practices. The proposed SRSI technique aligns well with self-regulated learning (Zimmerman, 1990), which guides the writing process through training metacognition (i.e. one’s ability to become aware of thought processes during learning) (Teng, 2016, 2019a) or taking control of strategic actions such as
planning, monitoring and evaluating personal progress (Teng, 2017; Teng and Reynolds, 2019). Self-regulation is critical to helping learners transfer independent learning strategies to tasks in other settings. Proficient writing requires self-regulation to manage writing processes, maintain productivity, and learn from previous experiences and knowledge. Research has found support for instruction on self-regulation strategies, including planning, monitoring, evaluation, goal setting, reinforcement, and time and environmental management (Schunk and Zimmerman, 2007). For example, Teng (2016) arranged 120 Chinese students into three groups: metacognitive training with a focus on self-regulation writing strategies in a cooperative learning setting; cooperative learning; and a control group. Findings showed that metacognitive training with a focus on self-regulation writing strategies in a cooperative learning setting led to the greatest improvements in writing scores. Overall, as argued by Teng (2019a), instruction in self-regulation writing strategies, including planning, drafting, organizing, revising and editing, was instrumental in enhancing learners’ writing.

The present study

This study separated major components of the SRSD model. A technique based on TSI was compared with an adaptation of the SRSD model, called SRSI, to teach elementary school learners. Text structure knowledge appears beneficial in fostering students’ ability to summarize; TSI was expected to elicit greater gains compared with SRSI when students composed main ideas from sources. Given the positive role of self-regulation writing strategies on enhancing writing, SRSI was expected to be associated with greater gains in writing quality compared with TSI. This study was driven by two major research questions:

RQ1. What are the effects of TSI, SRSI and traditional writing teaching on summary writing from sources?

RQ2. What are the effects of TSI, SRSI and traditional writing teaching on essay writing?

Method

Participants

Participants were 6th-grade students from three elementary schools in Hong Kong. The medium of instruction in the selected schools is English; hence, students learn in a school context where English is of significant importance. Students were learning English as a second language. Most participants reported their first language as Cantonese, whereas a few spoke Mandarin natively. Regarding participant selection, the dean of the teaching department at each school first provided a list of students judged to be at an intermediate English level according to a standard English writing exam for primary schools in Hong Kong. Second, participants’ scores on the Pearson Test of English (PTE Elementary 1) ranged from 40-50; this level covers young learners’ speaking, listening, reading, and writing abilities and is roughly equivalent to the Common European Framework of Reference for Languages (CEFR, A2 level), an international test from the Council of Europe. Out of 100 students in each school, about 50 to 60 met these criteria. With the dean’s assistance, the researcher contacted students’ parents and explained the study. Following collection of parents’ and students’ signed consent, 45, 42 and 48 students participated from the respective schools. All students were assembled in one school during summer vacation and divided randomly into three groups (n = 45). The analysis of variance (ANOVA) results of PTE scores,  F(2, 132) =0.436,  p = 0.781, revealed no significant proficiency discrepancies.
between the groups. Students received a meal coupon as an incentive for participating. Two students who failed to finish all exercises and teaching sessions were not included in data analysis. The final analysis included 45, 45, and 43 students in each group. Three female teachers who were not employed at any of the chosen schools volunteered to teach the class. They were aware of the purpose of the study, had earned a bachelor’s degree in English language education, and held over 5 years of teaching experience with elementary school students. To avoid teacher bias, each teacher was randomly assigned to one group.

**Conditions**

The study included three conditions: TSI, SRSI, and a control group. Each condition consisted of 20 sessions, and each session lasted an hour. Given that the hour could be too brief to complete lessons and assignments, students were asked to complete remaining requirements independently at home. The instruction for each session included a text and a writing exercise, which were identical across the three conditions.

The conditions differed in that TSI group learners received six sessions on TSI followed by 14 sessions on traditional writing instruction. SRSI group learners received six sessions on SRSI followed by 14 sessions on traditional writing instruction. The control group received 20 sessions on traditional writing instruction. The focus of TSI was on text structures, whereas that of SRSI was on self-regulation writing strategies. TSI did not include strategies in SRSI and vice versa. The control group had no exposure to TSI or SRSI strategies.

**Text structure instruction (n = 45)**

Learners in this group received instruction about text structure strategies based on Reynolds and Perin (2009). The focus was on fostering learners’ awareness to read, take, and organize notes and then synthesize ideas and details to plan for better written production. The text structure strategy, represented by the mnemonic “Structuring”, included “Scan the passage; Think of structure and the big main idea; Read the paragraphs; Underline the important point of each paragraph; Choose one interesting detail; Take notes using frame; U-turn (repeat with second passage); Review organization of notes; Introduce with topic sentence; Next point; and Go back and edit” (Reynolds and Perin, 2009, p. 281). Text structure graphic organizers were used by the students to take notes and record and organize ideas. TSI was provided through six sessions as described below.

In the first session, the teacher explained what STRUCTURING stands for along with why and when this strategy is used. Then, the teacher explained that all passages read during the lessons would follow the text structure sequence. The teacher demonstrated how graphic organizer strategies could be used to write a summary for a short paragraph. She followed the text structure strategy of prewriting steps, collecting and organizing notes, and then writing the summary. The teacher also modeled the text structure strategy using multiple sources, including exposition, literacy description, commentary on a story, and narratives. In the second session, the teacher guided students’ practice of pre-writing steps. The graphic organizer was used by the students to collect and organize notes during writing. Students then wrote an essay independently while the teacher circulated around the room and provided feedback.

In the third session, students were given time to complete their own graphic organizers and take notes. The teacher again modeled how to use the graphic organizers to collect and organize notes and then circulated and provided feedback while students wrote independently. In the fourth session, students generated main ideas by following the teacher’s modeling of the strategy. Students then copied notes into their own graphic
organizers and continued to write an essay or report from multiple sources independently. The teacher circulated among students to provide feedback and support. In the fifth session, the teacher modeled the remaining steps of the text structure strategy using multiple sources. Students continued to write the summary from multiple sources independently while the teacher provided feedback and support. Students also reviewed strategies for other text types. In the sixth session, the teacher and class reviewed steps completed during previous sessions. The teacher reviewed steps in the TSI technique and required students to apply the strategies independently to multiple sources. The teacher then provided comments and summarized the application of text structure strategies in writing.

Self-regulated strategy instruction (n = 45)
SRSI was adapted from the SRSD model (Harris and Graham, 1996; MacArthur et al., 2015). In this study, SRSI mainly included instruction around self-regulation writing strategies, such as writing planning, goal setting, self-monitoring, self-instruction, and self-reinforcement. These strategies were taught through cognitive modeling, explicit instruction, guided discovery, and peer practice. SRSI did not include organization and text structure. SRSI was used to familiarize learners with the goals and significance of self-regulation strategies. The ultimate aim was to withdraw the scaffold and guide learners to assume responsibility for identifying and organizing details and ideas. Learners’ roles included collaborating with the teacher as well as planning, monitoring, and evaluating their writing and the effectiveness of strategy instruction. SRSI instruction was provided in six sessions as follows.

In the first session, the teacher introduced SRSI and provided the rationale for each step. The teacher displayed a short paragraph followed by two essays (a well-written and poorly written example). The teacher explained that students must set goals for their writing and listed several goals students could set. Students were then told they would establish individual goals with the teacher later in the lesson. The teacher circulated around the room to provide feedback and support. In the second session, the teacher modeled steps for designing a writing plan, which students copied. The students listed main ideas independently. The teacher briefly reviewed students’ organized notes for planning writing. The purpose of the planning step was to develop and activate students’ background knowledge. Teachers also instructed self-regulatory procedures (i.e. goal setting, self-monitoring and self-assessment) in producing good writing.

In the third session, the teacher introduced the importance of evaluating and revising a written product and stressed that even good writing requires revision. Students were provided a list of self-regulation prompts (e.g. reflecting on revision strategies they could use). The teacher modeled how to monitor and evaluate writing and then circulated to provide support during students’ independent practice. In the fourth session, the teacher modeled how to use self-regulation writing strategies with multiple sources, thinking aloud as she planned and wrote an essay. The teacher showed how to set goals (e.g. “What do I have to do?”), self-evaluation (e.g. “Does the writing make sense?”), and self-reinforcement (e.g. “Do I like that writing?”). The students then discussed their goals and what they had learned. This process of identifying goal setting continued throughout subsequent sessions. Students continued to modify their plans while writing.

In the fifth session, the teacher reviewed steps of the strategy and how to use the steps with different sources. Students were asked to evaluate and discuss their previous writing on the basis of what they had learned. The teacher also reviewed students’ performance; based on individual output, the teacher discussed with the class the goals students set for writing. In the sixth session, the teacher and class reflected on which aspects or strategies
they had learned from previous sessions. Students wrote an essay using strategies they had learned without teacher or peer support. The teacher provided feedback, and students continued to share their essays with each other. Goal setting and graphing continued for one or two essays, after which students were told they could independently graph their progress for strategy transfer without the teacher’s assistance.

*Traditional instruction (n = 43)*
In this condition, learners were engaged in writing exercises but received no instruction on TSI or SRSI. Each session included four parts. In the first part, learners spent 10 min reading a text from the textbook and completing accompanying questions. In the second part, students were exposed to a 10-min preparation stage in which the teacher explained the writing exercise to the group. In the third part, students were given 30 min to conduct the writing exercise and could ask the teacher and peers for assistance. In the last part, the teacher spent 10 min summarizing the exercise and commenting on students’ performance while they completed the exercise.

*Treatment fidelity*
To avoid potentially unclear results due to differences in teacher characteristics, treatment fidelity was ensured through the following procedures. First, the three teachers attended a discussion session administered by the author and an independent trainer knowledgeable about TSI and SRSI. Second, each teacher attended an individual 90-min session with the author and trainer; the purpose was to understand the applicable treatment or control condition. The trainer was a teacher experienced in facilitating self-regulation training and was a member of a research project supervised by the author. During this session, the trainer provided a training package that included lesson scripts and all texts and exercises, instructed the teachers on how to carry out the instructional condition, and modeled instruction for the first lesson using the provided scripts and materials. Finally, to prevent teachers from deviating from the specified training procedure, the author randomly observed four sessions for each group. Based on checklists developed by the trainer from the lesson scripts, the author observed whether each teacher followed experimental procedures. According to the checklists, teachers mostly followed the required procedures. The author and trainer met with teachers after each observed lesson for possible refinement.

*Measures*
Measures, including a written summary and essay, were administered 1 day before and after the intervention; the pre- and post-test were identical, and all tests were in paper-and-pencil format. Based on teachers’ experience with similar tasks, the time allotted for the written summary and essay was 20 and 40 min, respectively.

*Test for summarizing main ideas.* Composing from sources, a technique adopted from Reynolds and Perin (2009), is a reliable test of measuring information summarized from text passages. First, participants read a text not used in training sessions. The topic of the text was “future life”. After reading it, students were asked to write a summary of the information. Performance was measured based on the proportion of main ideas in the source text presented in students’ written work. Procedures for identifying main ideas were based on Perin (2002). Three teachers worked independently to identify main ideas from the text; the agreement rate on main ideas was 85 per cent. Further discussion was held to compare and resolve differences. The chosen main ideas formed the basis of the score sheet. Cronbach’s alpha was 0.79, indicating good test reliability.
Test for measuring essay writing. The test to measure writing quality, adopted from Teng (2019a), was reliable in evaluating students' writing quality. Students were required to write a 100-word essay on the topic “My future job”. Similar types of writing were taught in each condition. Cronbach’s alpha was 0.78, indicating good test reliability.

Scoring system. Two independent raters were invited to score the tests. Interrater agreement on the written summary and essay tests were 0.86 and 0.81, respectively. Differences were resolved through inviting a third rater, and final scores were determined through majority opinion. The three raters were primary school English teachers who were not teaching participants. They were blind to the study purpose and design along with the condition under which each piece of writing was produced. The raters addressed scoring differences by evaluating several sample articles as a group. Each piece of writing was presented randomly to avoid biased judgments on the basis of previous students' work. Students' written summaries were scored based on presentation of the main ideas as follows: full summary (2 points), partial summary (1 point), or main ideas not stated at all (0 points). The text contained 10 agreed-upon main ideas. The maximum score on the test was 20 points. The marking scheme for essay writing was based on five components: task response, coherence and cohesion, spelling and punctuation, lexical resources, and grammatical range and accuracy. Task response was evaluated based on the main ideas and content the learners developed. Criteria were weighted equally, with 4 points assigned to each component. The maximum score for this test was 20 points. Appendix shows writing samples of students that were scored as having low, medium, and high writing quality; annotations about the scoring system are also included.

Data analysis
As this study involved three groups, ANOVA was performed to investigate pretest differences. A repeated-measures ANOVA was carried out for post-test writing tests. A multiple regression analysis was run to measure the effects of treatment conditions on writing outcomes. Quantitative analysis was based on raters' evaluations. Quantitative analysis was followed by linguistic and textual coding and analyses of students' writing (summaries and essays) under different learning conditions. Data coding followed data-driven coding (or open coding), which aims to identify common themes/patterns through initial and thorough readings of texts. For example, the sentences “I went to the school but I don’t like school” and “I get up and I don’t knew, beginning to worried of my future” were coded as the learners grasping basic tenses and grammar constructions but remaining highly inconsistent. The qualitative analysis offered an overview of the quality of instruction in each condition and explained differences in instruction and writing features.

Results
The mean scores for the two tests are listed in Table I. Mean scores on the pretest for summarizing main ideas ranged from 9.01 to 9.11. The TSI group achieved the highest score of 14.14, followed by the SRSI group (13.31) and control group (11.04). In terms of essay writing, mean scores ranged from 6.95 to 6.98 on the pretest. The SRSI group achieved the highest score of 11.51, followed by the TSI group (10.35) and control group (8.01).

ANOVA results did not show significant differences among groups on the written summary pretest, $F(2, 130)=0.354, p = 0.913$, or essay writing pretest, $F(2, 130)=0.452, p = 0.832$. To explore the differential effects of TSI, SRSI, and traditional instruction on students’ writing performance, a repeated-measures ANOVA was carried out. Significant differences between the three groups were detected on the post-test for the written summary
Based on post hoc LSD analyses, students’ scores on the written summary were significantly higher in the TSI group than the traditional instruction group \((p < 0.001, \text{effect size } d = 0.801)\). Students in the SRSI group outperformed those in the traditional instruction group \((p < 0.001, \text{effect size } d = 0.65)\). Significant differences were also detected between the TSI and SRSI groups \((p < 0.05, \text{effect size } d = 0.364)\). Likewise, essay writing performance was significantly higher for the SRSI group than the control group \((p < 0.001, \text{effect size } d = 0.826)\) as well as between the TSI and control groups \((p < 0.001, \text{effect size } d = 0.693)\). In addition, significant differences emerged between the TSI and SRSI groups \((p < 0.05, \text{effect size } d = 0.425)\).

To explore how treatment conditions affected writing outcomes, a multiple regression analysis was performed with TSI (centered) and SRSI (centered) as independent variables and writing outcomes (summary writing and essay writing) as dependent variables; results are presented in Table II.

Results revealed significant main effects from TSI and SRSI. The data indicated that using TSI enhanced writing outcomes but was more effective in summary writing than in essay writing. SRSI was also found to enhance writing outcomes but was more effective in essay writing than in summary writing.

### Linguistic and textual analyses of students’ written work

Linguistic and textual analyses of students’ written work included the following dimensions: syntactic complexity, content organization and lexical variations, all of which are important in L2 writing (Kuiken and Vedder, 2017). First, elementary school learners in the TSI condition tended to summarize main points from reading sources and compile them into a more inclusive conclusion or statement than students in other groups. In rewriting materials from reading resources, students combined several sentences into a single sentence, organized ideas more concisely, and categorized details (e.g. “Technology in the future will help us solve the environmental, social problems we encounter now”). Students demonstrated a range and sophistication of forms in written essays and exhibited greater ability to use complex sentence structures (e.g. “I feel nervous and I am afraid of standing in front of lots of people when I am talking on the stage”; “becoming a chef is one way that I can spread my joy to many more”). Occasionally, TSI group learners exhibited an emerging but inconsistent grasp of basic tenses and basic grammar construction. Some inaccuracies in tense use and spelling were detected along with unnatural or awkward expressions (e.g. “If I will become a physical therapist, I will help sicked people to get well”; “I also need to be hardworking so that I can go to a university degree”).

### Table I.

Means and standard deviations of test scores in each condition

<table>
<thead>
<tr>
<th>Measures</th>
<th>Conditions</th>
<th>Pretest M</th>
<th>Pretest SD</th>
<th>Post-test M</th>
<th>Post-test SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary writing</td>
<td>TSI</td>
<td>9.05</td>
<td>1.61</td>
<td>14.24</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>SRSI</td>
<td>9.11</td>
<td>1.68</td>
<td>13.31</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>9.01</td>
<td>1.69</td>
<td>11.04</td>
<td>1.33</td>
</tr>
<tr>
<td>Essay writing</td>
<td>TSI</td>
<td>6.98</td>
<td>1.96</td>
<td>10.35</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>SRSI</td>
<td>6.97</td>
<td>1.89</td>
<td>11.51</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>6.95</td>
<td>1.91</td>
<td>8.01</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Note: Maximum score is 20
Second, writing from students in the SRSI group was characterized by a mix of simple and complex sentence forms. Overall, students appeared able to write clearly; however, in some cases, summary writing in the SRSI group was repetitious, and content organization was unclear when learners lacked sufficient English vocabulary and facility with linguistic structures to summarize and express ideas in detail. When describing their future lives, students in the SRSI group could present ideas using high-frequency English vocabulary along with short, simple and occasionally complex sentences. Although their output sometimes revealed grammatical inaccuracies (e.g. “technology-collected life”; “technological change in person and profession life”; “technology introduces a huge part in our lives”), the SRSI learners generally demonstrated an advanced level of lexical variations or word use. In writing about their imagined future job, these students showed an advanced level of English vocabulary needed to describe jobs in science, math, law, technology, security and other areas. Word use included “how various chemicals react”, “honorable profession”, and “the arrest of a criminal”.

Finally, while summarizing main ideas and writing essays, students in the traditional writing instruction condition seemed to convey original messages in sentences using simple, high frequency English; however, learners’ content organization lacked logic and clarity. These students also lacked complex sentence forms to communicate their ideas in English (e.g. “Technology is important in future life”; “I want to be a singer; I will try my best”). They seldom attempted to use less common vocabulary and made errors in speaking and word formation, but these inaccuracies did not impede communication (e.g. “Technology is good because our life can convenient”; “I need to be create so I can write many songs”). Students occasionally used their primary language to express ideas and relied on the phonetics of their primary language to spell some common English words (e.g. “Technology results in a better society”; “I want to be a fireman for shaving people”).

Hence, although the two techniques of TSI and SRSI led to better and clearer texts compared with the traditional instruction group, each instructional approach appeared to exert unique impacts on students’ writing. Learners in the TSI group seemed to show stronger performance when presenting ideas in a written summary, whereas the SRSI group showed advantages in essay writing.

Discussion
The ability to compose from sources and write an essay based on a given topic is challenging dimensions of writing for L2 young learners. This study’s findings extend prior...
research highlighting the pivotal role of text structure knowledge on comprehending and composing from reading sources (Kintsch, 1990; Reynolds and Perin, 2009) and the role of self-regulation strategies on enhancing writing quality (Teng and Huang, 2018; Tracy et al., 2009). Consistent with previous studies (Limpò and Alves, 2018), promoting automaticity at the lowest level of organizational knowledge and self-regulation strategies resulted in spare attentional resources that contributed to high-level processes of generating ideas and organizing them into sentences. Overall, TSI and SRSI each seem to be promising instructional approaches that could enhance L2 young students’ writing ability and support them in organizing main ideas from sources. Both techniques seemed to enable students to identify more ideas for their writing, produce more complete and elaborate writing, and lead to more syntactically complex sentences. In particular, explicit instruction in text structure seemed to have greater impact on the quality of written summaries compared with the more generic approach used in SRSI. Further, SRSI instruction seemed to have a greater impact on essay writing than TSI.

First, students who were taught SRSI strategies (e.g. planning and monitoring written products, setting goals, managing the writing process, and evaluating essays) demonstrated improvement in essay writing. SRSI appeared to encourage students to carry out a pre-planning process in writing, take control of their writing development, and engage in self-regulated writing. In line with previous studies (Harris and Graham, 1996; Reutzel, 2015), learners seemed better able to self-regulate writing as their self-regulation capacity freed up attentional capacity to generate more elements for writing and enabled learners to register these elements quickly. The present study thus confirmed that SRSI, with training in self-regulation strategies, can facilitate writing (Harris and Graham, 1992; Teng, 2019b; Tracy et al., 2009). As Kendall (1989) noted, elementary school L2 learners—especially those struggling with writing—should be assisted in applying self-regulation strategies and skills. SRSI learners also wrote better essays than control-group students. One explanation was the explicit teaching of and guided practice in writing-related self-regulation strategies. Such strategies might have promoted learners’ strategic competence to activate, organize, and manage multidimensional processes for writing, thereby enhancing text quality. For example, planning strategies may have enabled these learners to devote more attention to language formulation. The monitoring and evaluation strategies could have also helped them in determining their strengths and weaknesses in writing. The author argues that SRSI students could use the schema of planning, monitoring, and evaluating as a guide to encode information, prompt knowledge and transfer skills for subsequent writing to promote essay writing at the sentence and word levels.

Second, analyzing text structure may help elementary L2 young learners organize, compare, and build richer connections with their background knowledge or texts they have read (Teng, 2019c), thus affecting writing production. Instruction on text structures appeared to help young learners learn to identify texts’ structural components and organization and then use text structure knowledge to generate texts, thus empowering subsequent writing ability. As suggested by Kirkpatrick and Klein (2009), L1 elementary school students may benefit from instruction about text structures, from which they can learn to identify texts’ structural organization and become empowered to structure their own texts and produce summaries based on readings. One explanation for the enhanced summary writing was that the instruction on text structure may help students identify structural parts of an argument, decipher important and unimportant parts of the text, and summarize main ideas using predetermined evaluative criteria. The strategy instruction (modeling, guided practice, ample practice with examples and non-examples to understand structural elements of a text, collaborative practice with peers, and independent practice) improved learners’ writing
quality. Improved writing quality then demonstrated the effectiveness of this scaffold as an aid to build a coherent representation of a text and hierarchically store text information for elementary L2 learners. This advantage may not be simply achieved through students’ previous background knowledge or learning experiences but rather through a scaffold or ability to focus on structure and apply information from texts.

Finally, these findings imply that self-regulation strategies and text structure knowledge play distinct roles in written output. For example, the advantage of TSI lays in motivating elementary school L2 learners to summarize main ideas from sources; to produce more accurate, complete, and elaborate arguments; and to write more syntactically accurate sentences. The advantage of SRSI lays in addressing key cognitive, motivational, and behavioral processes that typically underlie difficulties faced by struggling L1 writers (Harris and Graham, 2013). Elementary school learners who experience difficulty regulating the writing process may benefit from SRSI intervention. This approach may help them understand content, generate and organize ideas, put those ideas into words, execute fine motor movements to form letters, or enact self-regulatory mechanisms to manage the writing process (Pinter, 2017). One issue to consider with caution is that although post-test scores for the TSI and SRSI groups were statistically significant in terms of writing outcomes, the gap was not large. A clear division does not exist between self-regulated writing strategies and text structure knowledge; the two techniques should be complementary, as suggested in the earlier SRSD model (Harris and Graham, 2009; MacArthur et al., 2015). By contrast, students in the control group (who did not receive either TSI or SRSI) lacked logic in their writing. Their compositions also contained many errors in grammar and syntax. These patterns may have emerged for several reasons. First, elementary school students may not receive much motivational feedback during the writing process and may not possess sufficient text structure knowledge about writing. They may also lack interest or attention in regulating their writing. Although teachers in this study attempted to share effective writing strategies and practice with students, the students may not have been motivated to improve their writing skills. Learners’ focus and effort may thus have been limited to fulfilling the writing requirement rather than engaging in cognition during the writing process.

As noted in the introduction, elementary student writers often experience writing-related anxiety. They found it difficult to plan, organize and generate ideas prior to writing; to monitor the process of putting ideas into words; and to enact self-regulatory mechanisms to evaluate their writing process. Against this profile, the present study provides empirical evidence that explicit teaching of SRSI writing strategies or TSI can be implemented effectively and elicit gains in elementary school L2 learners’ written output. Subsequent research should expand current findings by investigating multicomponent interventions involving SRSI and TSI to boost writing in struggling young student writers.

Limitations and implications
This study is not without limitations. First, the intervention was administered by three instructors; although attempts were made to control for teacher effects through randomized-controlled trials, teacher characteristics may have produced confounding results. Second, due to difficulties in accessing elementary schools, few participants were included in each group. Additional intervention studies should be conducted with larger samples to detect intervention effects. Third, future studies should be carried out with controls for more variables, such as learners’ motivational processes, strategic behavior, pre-intervention beliefs and working memory. Fourth, writing is a complex process. More tests, including those on writing length or written recall, may be needed to examine writing performance. In addition, pre- and post-tests in this study were identical; practice effects may have
influenced the findings. Because reading comprehension is important for note taking and synthesis, a measure of reading comprehension should be included in future studies. Finally, the author observed the teachers and completed the fidelity checklists; raters should be employed for observations in future studies to enhance objectivity. Despite these limitations, training involving TSI or SRSI breaks new ground in writing for elementary school L2 learners. This training may help to attenuate elementary school L2 learners’ challenges in summarizing main ideas and may decrease difficulties associated with L2 English writing.

References

Further reading
Appendix

Students’ sample writings and scoring from one rater

Directions: Please write an essay based on the given topic. The time for this writing test is 40 minutes.

**My future job**

Everyone has a dream, I am not an exception. I want to be a doctor when I grow up. I think it is a great job since I can help a lot of people and the money is high.

To become a doctor, I need to learn to take care of others. I also need to be hardworking so that I can get a university degree. I need to have a good image. I also need to be helpful. I need to be good in English so that I can speak to people from other countries. I need to have a skill of good communication so that I can understand patients. I need to be sure that this job because I am not afraid of difficulties.

I have some weaknesses. I am shy. I am afraid of my classmates. I am also afraid to talk to strangers. I am afraid of being careless. So, I need to be more careful. I need to work hard for being a doctor one day.

**Task response:** Presents relevant main ideas but some were not clear. Addresses most parts of the task (12 points)

**Coherence and cohesion:** Lack of cohesion within and/or between sentences. Overall progression is clear but needs more work (12 points)

**Lexical resource:** Only simple sentence forms. Complex sentence forms were not accurate (2 points)

**Grammatical accuracy:** Not a few errors were detected. But communication is fine (2 points)

**Spelling:** Overall, the spelling is fine, but some words were not accurate (2 points)

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Figure A1.
One sample writing and scoring collected from the TSI condition

Elementary school students’ writing
Directions: Please write an essay based on the given topic. The time for this writing test is 40 minutes.

My future job

I am in my sixth-grade now. When I grow up, I want to be a physical therapist. I want to be a physical therapist because I like to study medicine. I like to read some books about medicine too.

If I will become a physical therapist in the future, I will help sick people to get well. I will promote a physical and mental healthy living style. I will assist patients so that they can live independently.

Physical therapists need to be caring so that they can help sick people to get well. They need to be patient so that they can listen to their patients carefully. They need to have good English too because they need to meet some foreign patients. I think I can fit to be a physical therapist because I am caring and patient.

From now on, I am going to practice my English. I am going to study hard so I can go into university. I am going to work hard so that I can do my future job.

Task response: addresses all parts of the task although some parts may be fully covered than others (25 points)

Coherence and cohesion: Organization of information and ideas is logical but there is not clear progression throughout. Cohesion between sentences were faulty (15 points)

Lexical Range: less common vocabulary were used but some were inaccurate (2 points)

Grammatical accuracy: A mix of simple and complex sentence form. Make some errors in grammar (7 points)

Spelling: Makes some errors in spelling (2 points) 10 points
Directions: Please write an essay based on the given topic. The time for this writing test is 40 minutes.

**My future job**

I want to tell you about my dream job. I want to be a singer when I grow up. I like singing and I like listening to songs. I want to be a superstar. If I can become a singer, I will use my power to sing songs. I will perform on the stage.

I need to be braved so that I can sing in front of people. I need to be creative so I can write many songs. I need to play so that I can sing and play so that I can sing and play the piano at the same time. But I can't do it now. I need practice singing songs now. I will listen to different songs more because I want to know more about different types of music.

I hope I can be a famous singer one day. I will try my best to do my future job.

**Task response:**
Addresses all parts of the task but most parts were repetitive and unoriginal (2.5 points)

**Coherence and cohesion:**
Cohesive devices were not used effectively. Some cohesion was faulty or mechanical (1.5 points)

**Lexical resource:**
Use a limited range of words. Limited control of word formation (1 point)

**Grammatical accuracy:**
Attempts complex sentences but these tend to be less accurate than simple sentences. Many frequent grammatical errors (1 point)

**Spelling:**
Errors in spelling and word formation were detected. Most of simple words were correct (8 points)

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**About the author**

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**Figure A3.**
One sample writing and scoring collected from the traditional writing instruction condition