IMPROVING HIGH SCHOOL WRITING SKILLS THROUGH COGNITIVE STRATEGY INSTRUCTION: A NARRATIVE LITERATURE REVIEW IN INDONESIAN EFL CLASSROOMS

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ABSTRACT

Writing in a foreign language asks high school students to plan, formulate, and revise text at the same time, and many of them do so without a repertoire of strategies to lean on. This article reviews research on cognitive strategy instruction (CSI) as a way to improve high school students' writing, with particular attention to English as a foreign language (EFL) classrooms in Indonesia. Drawing on cognitive models of writing, meta-analytic evidence on adolescent writing instruction, and studies of Self-Regulated Strategy Development (SRSD), the review shows how explicit strategies, teacher modelling, gradual release of support, and self-regulation procedures can reduce the load of composing. The article then proposes a six-stage classroom sequence adapted to text types used in Indonesian senior high schools and discusses constraints, including teacher workload, feedback, and the limited local experimental evidence. It concludes that CSI is a promising and teachable approach, and that classroom-based studies in Indonesian schools are the most pressing research need.

Keywords: cognitive strategy instruction; writing skills; senior high school; EFL; self-regulated strategy development; working memory

A. Introduction

Few school skills carry as far beyond the classroom as writing. Graham and Perin (2007) describe writing, together with reading comprehension, as a predictor of academic success and a requirement for taking part in civic and economic life. For students in Indonesian senior high schools, who write in English as a foreign language, the skill is doubly demanding: they must decide what to say, organize it for a reader, and do all of this in a language they are still acquiring.

Available data point to a general literacy concern. In PISA 2022, about 25% of Indonesian 15-year-olds reached Level 2 or above in reading, against an OECD average of 74% (OECD, 2023). PISA does not test writing, so these figures are best read as a broad indicator of literacy difficulty and not as a measure of how well students write. Closer to the classroom,

Ichwany et al. (2026), citing earlier studies, report that Indonesian EFL students continue to struggle with organization, vocabulary, grammar, and content development. Their survey of 110 eleventh graders in Malang found that metacognitive strategies were the least used of the strategy types measured (M = 3.19, compared with 3.38 for social-behavioral strategies), although the gap was small.

One response is to teach students how to write, and not only what a finished text should look like. Cognitive strategy instruction (CSI) does this by making the mental moves of skilled writers visible, nameable, and learnable: setting a goal, generating ideas, organizing them, and checking the draft against the goal. The best-known form of CSI in writing is Self-Regulated Strategy Development (SRSD), developed by Harris and Graham (1996) and studied extensively since.

This article asks three questions. First, why does composing overload developing writers? Second, what is CSI, and what does research say about its effects on adolescents' writing? Third, how might teachers in Indonesian senior high schools adapt it, and what obstacles should they expect? The sections that follow describe the review method, discuss the cognitive demands of writing, present CSI and its evidence, propose a classroom sequence, and consider challenges before concluding.

B. Method

This article is a narrative literature review. Sources were selected for their bearing on three topics: cognitive models of writing, instruction that teaches writing strategies, and writing in Indonesian EFL classrooms. Priority went to peer-reviewed articles, meta-analyses, and research reports, and to studies of secondary school learners; foundational books and chapters were included where a theory was first set out. Indonesian studies were included when they concerned senior high school students or EFL writers. Because the review is narrative and not systematic, its purpose is to build an argument and to locate gaps, not to count the literature exhaustively, and its conclusions should be read with that in mind.

3. The Cognitive Demands of Writing

Flower and Hayes (1981) described composing as goal-directed problem solving in which planning, turning ideas into language, and reviewing recur throughout a task under the watch of a monitor. Hayes (2012) later refined the model, giving explicit places to motivation, transcription, and the resources of attention and working memory.

Kellogg (1996) tied these processes to working memory. In his model, formulating ideas and language, executing the text, and monitoring it each draw on parts of working memory, and the central executive, which is

limited in capacity, must coordinate them. Because capacity is finite, the processes compete. McCutchen (1996) added that when lower-level skills such as spelling and sentence construction are not yet fluent, they absorb capacity that planning and revision would otherwise use.

The consequence shows up in the kind of text a writer produces. Bereiter and Scardamalia (1987) distinguished *knowledge telling*, in which the writer records what comes to mind on a topic, from *knowledge transforming*, in which the writer reworks ideas against the needs of a reader. Kellogg (2008) argued that reaching the second mode requires enough executive attention to control several representations of the text at once, and that this becomes possible only as the demands of each process shrink through development and learning. Novice writers, whose processes are still costly, tend to stay with knowledge telling.

These models were built mostly on first-language writers, but their logic carries over to EFL writing. When retrieving English vocabulary and grammar is itself effortful, less capacity remains for planning and revising. We offer this as an inference from the models, not as a finding that can be cited directly, and it deserves testing in Indonesian classrooms. Graham and Harris (2000) add that writing development depends on two things beyond ideas: fluent transcription and self-regulation, that is, the ability to set goals, monitor progress, and manage effort. Instruction therefore has two levers: lower the demands of the task, and teach students how to control the process. CSI is aimed mainly at the second.

4. Cognitive Strategy Instruction

4.1 What CSI involves

Graham and Perin (2007) use the term strategy instruction for teaching students, explicitly and step by step, how to plan, revise, or edit their writing, with independent use as the aim. In SRSD, the version most often studied, the following elements recur (Harris & Graham, 1996):

- A named strategy, usually with a mnemonic. POW, for example, prompts students to Pick an idea, Organize notes, and Write and say more; TREE prompts a Topic sentence, Reasons, Explanation of each reason, and an Ending.
- Genre knowledge, built by studying model texts and identifying their parts.
- Teacher modelling, in which the teacher composes aloud and shows how the strategy is used when a problem arises.
- Self-regulation procedures: goal setting, self-monitoring, self-instruction, and self-reinforcement, which draw on the wider literature on self-regulated learning (Zimmerman, 2002).

- Scaffolded practice in which support is withdrawn gradually, with students moving on when they show mastery and not simply when a set time has passed.

4.2 How CSI may ease the load

Read against the cognitive models above, these features suggest several mechanisms. A mnemonic packs a set of decisions into one retrievable cue, so the writer need not hold the whole plan in mind. A graphic organizer keeps ideas on paper instead of in working memory. Self-instruction and self-monitoring supply some of the executive control that novices lack. Repeated use with fading support moves the strategy toward automatic retrieval. These mechanisms are our interpretation; the studies below test effects on writing outcomes and not the mechanisms themselves.

4.3 Evidence

The strongest general evidence comes from Graham and Perin's (2007) meta-analysis of 123 experimental and quasi-experimental studies with students in Grades 4 to 12. Of the eleven instructional elements they identified, strategy instruction had the largest average effect on writing quality (effect size = 0.82). A finding of that kind supports strategy teaching as a whole; it does not, by itself, tell us which components matter most or how well the results transfer to another country and language.

Studies of SRSD specifically include Harris et al. (2006), who tested the approach with struggling second-grade writers. Much of the SRSD literature involves first-language English speakers and younger learners, so evidence from Indonesian senior high EFL classrooms is thin. One example is Saputra et al. (2014), who taught eleventh graders at a school in Padang to write hortatory exposition using SRSD with the TREE mnemonic and reported better results than under the teacher's usual method. As a single-school study it is suggestive, not conclusive.

Practice and feedback also matter. Kellogg and Whiteford (2009) argue that writers improve through deliberate practice: effortful tasks matched to current ability, timely feedback, and many repetitions. Among Indonesian first-semester English education students, Yerni (2021) found a correlation of .734 between the intensity of writing practice and argumentative writing scores (n = 41). The study is correlational and involves university students, so it cannot show that practice causes better writing, but it agrees with the view that regular practice belongs in any writing program. Strategy instruction does not replace practice; it gives practice a structure. Spacing that practice over several sessions, and not compressing it into one, generally supports longer-lasting learning (Schmidt & Bjork, 1992).

5. Adapting CSI for Indonesian Senior High EFL Classrooms

SRSD is usually taught through six recursive stages (Harris & Graham, 1996). Recursive means that teachers may return to an earlier stage when students need it. Table 1 sets out the stages with an example built around exposition texts, which appear in senior high English teaching and have been used in an Indonesian SRSD study (Saputra et al., 2014).

Table 1. A six-stage SRSD sequence for exposition writing in an EFL class

SRSD stage	What the teacher does	What students do	Illustration (exposition text)
1. Develop background knowledge	Presents two short model texts and checks the vocabulary needed to discuss them.	Read the models and mark the thesis, arguments, and closing statement.	Students highlight the thesis and each supporting reason in a model analytical exposition.
2. Discuss it	Talks with students about how they usually write, why a strategy might help, and how progress will be tracked.	Describe their own habits, agree to use the strategy, and set a first goal.	Goal: "Include at least three reasons in my next text."
3. Model it	Plans and drafts a text aloud in front of the class, including self-statements for moments of difficulty.	Watch, ask questions, and suggest ideas for the teacher's text.	The teacher fills in an organizer and says, "I am stuck on the second reason, so I will check my notes."
4. Memorize it	Introduces a mnemonic for the steps and has students rehearse it.	Learn the steps and their meanings until they can recall them without a prompt.	An adapted TREE cue: Thesis, Reasons, Explanation, Ending or recommendation.
5. Support it	Gives guided practice with organizers, checklists, and targeted feedback, then withdraws prompts step by step.	Plan and draft with a partner, then alone; check the draft against the goal.	Pairs build a plan, write separately, and use a checklist to review each other's texts.

SRSD stage	What the teacher does	What students do	Illustration (exposition text)
6. Independent performance	Steps back and offers occasional review sessions.	Write on their own, monitor their work, and adapt the strategy to new topics.	Students write on an unfamiliar topic and record their results on a progress chart.

Three adjustments seem sensible for EFL settings. First, students need language support alongside strategy support, such as sentence frames for stating a thesis and vocabulary lists for the topic. Second, teachers might allow early planning notes in Indonesian and move toward English as students gain confidence; this is a pedagogical suggestion that still needs classroom testing. Third, the mnemonic can be adapted to the text type. TREE was designed for opinion essays, so a hortatory exposition might add a recommendation to the ending.

Self-monitoring tools fit naturally into the later stages. Students can keep a simple chart of how many reasons or supporting details they included in each text, and teachers can use the same chart to see progress without re-marking every draft. Practice should also be spread across weeks, with short cycles of planning, drafting, and revising, in line with the spacing research cited above.

6. Challenges and Considerations

Teacher workload and feedback. Writing takes time to assess, and large classes make timely feedback difficult. Kellogg and Whiteford (2009) proposed that automated essay scoring could lighten the grading load and so allow more practice, and Palermo and Thomson (2018) studied teachers who paired SRSD with an automated writing evaluation system in middle school. Whether such tools work well for Indonesian EFL writers remains to be shown, since many were designed for first-language essays. In the meantime, rubric-based peer review, self-checklists, and feedback limited to one target criterion per draft are lower-cost ways to keep feedback frequent.

Teacher preparation and time. SRSD asks teachers to model, scaffold, and let students move at the pace of mastery. In our reading, this sits uneasily with tightly scheduled syllabi, and teachers will probably need training and some flexibility in pacing.

Risk of formulaic writing. If students apply a strategy mechanically, their texts may become rigid. This is one reason the final stage stresses independent use and adapting the strategy to new tasks, not repeating a template.

Limited local evidence. Existing Indonesian studies of strategy instruction are few and mostly small. Ichwany et al. (2026) recommend combining explicit metacognitive strategy instruction with collaborative

learning, which is compatible with the sequence proposed here but has yet to be tested as a package.

D. Conclusion

Writing overloads developing writers because planning, formulating, and reviewing compete for limited attention. Cognitive strategy instruction responds by teaching students explicit procedures and the self-regulation needed to use them, and meta-analytic evidence from adolescent classrooms supports it. The evidence from Indonesian senior high EFL classrooms is much thinner, so the approach should be regarded as promising and not proven for this setting.

Three implications follow. Teachers can begin with one text type and one mnemonic, model the strategy aloud, and withdraw support gradually while keeping feedback focused. Researchers should test CSI in Indonesian senior high schools with comparison groups, delayed post-tests, and measures of transfer to new tasks. Curriculum planners should recognize that strategy instruction needs time for modelling and practice, and provide it. Together, these steps would show whether CSI can do for Indonesian students what it has done in the studies reviewed here.

REFERENCES

Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Lawrence Erlbaum Associates.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication, 32*(4), 365–387. https://doi.org/10.2307/356600

Graham, S., & Harris, K. R. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist, 35*(1), 3–12. https://doi.org/10.1207/S15326985EP3501_2

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology, 99*(3), 445–476. https://doi.org/10.1037/0022-0663.99.3.445

Harris, K. R., & Graham, S. (1996). *Making the writing process work: Strategies for composition and self-regulation* (2nd ed.). Brookline Books.

Harris, K. R., Graham, S., & Mason, L. H. (2006). Improving the writing, knowledge, and motivation of struggling young writers: Effects of self-regulated strategy development with and without peer support. *American Educational Research Journal, 43*(2), 295–340. https://doi.org/10.3102/00028312043002295

Hayes, J. R. (2012). Modeling and remodeling writing. *Written Communication, 29*(3), 369–388. https://doi.org/10.1177/0741088312451260

Ichwany, S. S. F., Laksmi, E. D., & Eliyanah, E. (2026). Gender and

self-regulated writing among Indonesian high school students. *International Journal of English Learning and Applied Linguistics, 6*(2), 194–210. https://doi.org/10.21111/ijelal.v6i2.12

Kellogg, R. T. (1996). A model of working memory in writing. In C. M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 57–71). Lawrence Erlbaum Associates.

Kellogg, R. T. (2008). Training writing skills: A cognitive developmental perspective. *Journal of Writing Research, 1*(1), 1–26. https://doi.org/10.17239/jowr-2008.01.01.1

Kellogg, R. T., & Whiteford, A. P. (2009). Training advanced writing skills: The case for deliberate practice. *Educational Psychologist, 44*(4), 250–266. https://doi.org/10.1080/00461520903213600

McCutchen, D. (1996). A capacity theory of writing: Working memory in composition. *Educational Psychology Review, 8*(3), 299–325. https://doi.org/10.1007/BF01464076

OECD. (2023). *PISA 2022 results (Volume I and II): Country notes: Indonesia*. https://www.oecd.org/en/publications/2023/11/pisa-2022-results-volume-i-and-ii-country-notes_2fca04b9/indonesia_0e09c072.html

Palermo, C., & Thomson, M. M. (2018). Teacher implementation of self-regulated strategy development with an automated writing evaluation system: Effects on the argumentative writing performance of middle school students. *Contemporary Educational Psychology, 54*, 255–270. https://doi.org/10.1016/j.cedpsych.2018.07.002

Saputra, D. B., Ratmanida, & Al-Hafizh, M. (2014). The effect of using self regulated strategy development toward senior high school students' writing ability in hortatory exposition. *Journal of English Language Teaching, 3*(1). https://doi.org/10.24036/jelt.v3i1.4370

Schmidt, R. A., & Bjork, R. A. (1992). New conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. *Psychological Science, 3*(4), 207–217. https://doi.org/10.1111/j.1467-9280.1992.tb00029.x

Yerni. (2021). How does intensity of writing practices correlate with argumentative writing ability among Indonesian freshmen students? *Pedagogy: Journal of English Language Teaching, 9*(2), 135–148. https://doi.org/10.32332/joelt.v9i2.3687

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2