

Prompt, Hint, Model, Feedback: How Dynamic Assessment Shapes Procedural Writing Skills and Self-Efficacy in a Vocational ESP Classroom

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Abstract

Dynamic Assessment (DA) merges instruction and assessment into a single mediated process. This study tested its effect on procedural writing and writing self-efficacy in a vocational ESP classroom and tracked how students reacted to it, using a pre-experimental, one-group pretest-posttest design. Twenty-two eleventh-grade Software and Game Development students at a vocational high school in Bandung, Indonesia, completed a procedural writing test and two questionnaires before and after a four-stage mediation intervention (prompting, hinting, modeling, feedback); paired-samples t-tests and Cohen's d analyzed the results. Writing scores rose from $M = 57.23$ to $M = 78.50$ ($t(21) = 26.12$, $p < .001$, $d = 2.59$), self-efficacy rose from $M = 23.32$ to $M = 36.50$ ($t(21) = 31.43$, $p < .001$, $d = 4.02$), and student response shifted from neutral to strongly positive ($t(21) = 35.80$, $p < .001$, $d = 4.59$). These findings extend DA scholarship into procedural, technical-genre writing. The design lacked a control group, and the self-efficacy instrument's reliability was low ($\alpha = .454$); the numbers here point in a clear direction, but they should not be mistaken for proof.

Keywords: Dynamic Assessment; Procedural Writing; Self-Efficacy; English For Specific Purposes; Vocational Education

INTRODUCTION

English is becoming an increasingly essential skill in the global digital economy, as industries become more reliant on English-mediated technical documentation, software instructions, and cross-border communication. Indonesia, however, still faces persistent challenges in this regard: in the 2025 EF English Proficiency Index, Indonesia ranked 80th out of 123 countries with a score of 471, placing it in the "low proficiency" band, although the score reflected a slight improvement from the previous year (EF Education First, 2025). This gap hits vocational education hardest: graduates are expected to enter technology-driven workplaces that demand functional English literacy alongside technical skill.

Within English for Specific Purposes (ESP) education, procedural writing occupies a central position for students in Software and Game Development (PPLG) programs, who are required to transform technical knowledge into clear, logical, and linguistically accurate instructions such as installation guides or troubleshooting steps. ESP instruction is learner-centered and aligned with the communicative needs of specific academic and occupational contexts (Salmani-Nodoushan, 2020). A procedural text typically comprises an aim, materials where relevant, and a sequence of logically ordered steps, with linguistic features including imperative

verbs, sequencing markers, and technical terminology specific to the learner's field (Nagao, 2023; Yusuf & Rofiawati, 2024). Writing procedural texts nonetheless presents considerable difficulty for EFL learners, who often struggle to sequence processes logically and apply appropriate technical terms (Ferris, 2011; Mauludin, 2018); this difficulty persists across instructional approaches, since even non-DA interventions such as TikTok-based instruction leave students struggling to order steps logically (Berlianty et al., 2025), and many ESP classrooms still grade the finished product and skip the process that produced it (Naqvi, 2025).

The successful production of procedural text depends not only on language competence but also on learners' confidence in their own ability to complete the task, a psychological construct Bandura (1997) terms self-efficacy: learners' beliefs in their capability to accomplish specific tasks, which shapes how much effort they invest, how long they persist, and how engaged they stay. A preliminary observation at the research site found students struggling to organize procedural steps logically, apply acceptable grammatical patterns, and use appropriate technical terminology, with grammatical errors the most common problem. The pattern is not confined to this one school: Mauludin and Prasetyo (2024) found that Indonesian vocational ESP writers leaned heavily on basic lexical repetition and underused more advanced cohesive devices. A more telling sign was how many students copied from online sources instead of developing their own ideas: low confidence and limited ownership of the writing process, not a language deficit alone, drove the problem.

Sociocultural theory, particularly Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), offers a lens for understanding how writing skill and self-efficacy might be developed simultaneously. The ZPD is the difference between what learners can do independently and what they can do with appropriate assistance; when learners receive mediation while performing a task slightly beyond their independent ability, they accumulate guided-success experiences that Bandura (1997) identifies as the strongest source of self-efficacy. Dynamic Assessment (DA) operationalizes this idea by treating instruction and assessment as a single mediated process rather than two separate phases (Poehner & Wang, 2021), with support provided progressively from implicit to explicit assistance: prompting, hinting, modeling, and feedback (Lantolf et al., 2020; Lantolf & Poehner, 2011). Several empirical studies report favorable effects of DA on writing development: mobile-mediated DA significantly improved EFL learners' writing achievement (Ebadi & Bashir, 2021); DA improved learners' revision behavior (Shrestha, 2020); DA contributed positively to organization, grammar, and vocabulary in ESP writing (Mauludin et al., 2025); ZPD-based DA improved the organizational quality of L2 argumentative writing (Poehner & Yu, 2022); and combining computer-mediated prompts with instructor-led mediation produced greater gains than computerized prompts alone (Sun & Wang, 2020).

Writing self-efficacy specifically refers to an application of Bandura's (1997) broader construct to the writing domain, encompassing learners' belief in their capacity to plan, draft, revise, and complete a writing task successfully; prior research links high writing self-efficacy to higher-quality writing, more effective strategy use, and greater persistence in revision (Teng, 2024), and sustained feedback and guided revision have been shown to strengthen learners' confidence and reduce writing anxiety (Sun & Wang, 2020). The four sources of self-efficacy identified by Bandura (1997), mastery experience, vicarious experience, verbal persuasion, and physiological states, correspond closely to the structure of DA: prompting and hinting create

mastery experience by helping learners solve problems with guided support, modeling provides vicarious experience, and feedback functions as verbal persuasion.

Figure 1 illustrates the conceptual framework of this study, linking DA-based instruction to procedural writing skill and writing self-efficacy as the two dependent variables under investigation.

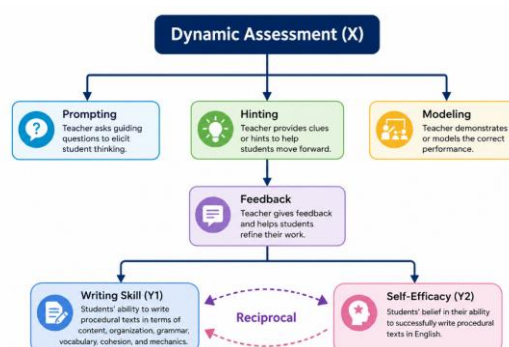


Figure 1. Conceptual Framework of the Study

Most prior DA research, however, was conducted in general EFL settings and focused on descriptive or argumentative writing, leaving procedural writing in vocational ESP contexts comparatively sparse. This gap matters because procedural writing entails technical precision, sequential logic, and context-specific vocabulary that are not well served by traditional, product-focused assessment. This study therefore investigated the effect of DA on students' procedural writing skills and writing self-efficacy in a vocational ESP classroom, and explored students' responses to its implementation, guided by three research questions: (1) To what extent does DA enhance students' procedural writing skills? (2) To what extent does DA improve students' writing self-efficacy? (3) How do students respond to the implementation of DA during procedural writing activities?

METHOD

This study employed a pre-experimental, one-group pretest-posttest design to examine the effect of Dynamic Assessment on students' procedural writing skills and self-efficacy, conducted at a vocational high school (SMK) in Bandung, Indonesia, over a six-week period. Participants were a purposively selected intact class of 22 eleventh-grade students enrolled in the Software and Game Development (PPLG) program, selected because the class demonstrated consistent attendance, comparable English proficiency, and engagement in procedural writing tasks.

Three instruments were used. A procedural writing test scored using an analytic rubric adapted from Jacobs et al. (1981) and Brown (2007), covering content, organization, grammar, vocabulary, cohesion and coherence, and mechanics (total score 100), was administered at pretest and posttest. A 15-item, three-point Likert writing self-efficacy questionnaire (possible range 15–45) measured writing confidence, persistence, problem-solving, and motivation; its internal consistency was low, Cronbach's $\alpha = .454$, a limitation addressed in the Discussion. A 15-item, five-point Likert questionnaire (possible range 15–75) measured learning readiness at

pretest and DA response at posttest, with good internal consistency ($\alpha = .891$ pretest, $\alpha = .807$ posttest).

Data collection followed the notation O_1 (pretest) $\rightarrow$ X (treatment) $\rightarrow$ O_2 (posttest). The treatment phase spanned four sessions of graduated mediation moving from implicit to explicit support: prompting, hinting, modeling, and feedback, after which students revised their texts independently. Descriptive statistics summarized pretest and posttest scores; the Shapiro-Wilk test assessed normality; and, because all distributions met the normality assumption, paired-samples t-tests ($\alpha = .05$) tested the three research hypotheses, with Cohen's d estimating effect magnitude using the conventional benchmarks of 0.20 (small), 0.50 (medium), and 0.80 (large). Participants and guardians were informed of the study's purpose and provided consent; identities were anonymized in reporting, and participation did not affect course grades.

RESULTS AND DISCUSSION

Results

The mean procedural writing score increased from 57.23 (SD = 6.29) at pretest to 78.50 (SD = 9.75) at posttest (Table 1). Both distributions met the normality assumption (pretest $W = 0.969$, $p = .683$; posttest $W = 0.960$, $p = .496$). A paired-samples t-test showed a statistically significant difference, $t(21) = 26.12$, $p < .001$, $d = 2.59$. Every one of the 22 students improved; none declined.

Table 1. Procedural Writing Scores Before and After Dynamic Assessment

Measure	n	M	SD	t	df	p	d
Pretest	22	57.23	6.29				
Posttest	22	78.50	9.75	26.12	21	< .001	2.59

The mean self-efficacy score rose from 23.32 (SD = 2.55) at pretest to 36.50 (SD = 3.88) at posttest (Table 2). Both distributions were normally distributed (pretest $W = 0.969$, $p = .697$; posttest $W = 0.957$, $p = .440$). A paired-samples t-test showed a statistically significant difference, $t(21) = 31.43$, $p < .001$, $d = 4.02$. Every student's score went up.

Table 2. Writing Self-Efficacy Scores Before and After Dynamic Assessment

Measure	n	M	SD	t	df	p	d
Pretest	22	23.32	2.55				
Posttest	22	36.50	3.88	31.43	21	< .001	4.02

The mean response score rose from 45.77 (SD = 5.03) at pretest to 66.27 (SD = 3.82) at posttest, out of a maximum of 75 (Table 3). A paired-samples t-test showed a statistically significant difference, $t(21) = 35.80$, $p < .001$, $d = 4.59$, the largest effect size among the three research questions. All 22 students shifted from the Neutral category at pretest to the Positive category at posttest, with 99.7% of posttest item responses falling in the Agree or Strongly Agree categories.

Table 3. Learning Readiness (Pretest) and Response to Dynamic Assessment (Posttest)

Measure	n	M	SD	t	df	p	d
Pretest (Readiness)	22	45.77	5.03				
Posttest (Response)	22	66.27	3.82	35.80	21	< .001	4.59

Discussion

The results indicate that Dynamic Assessment was associated with substantial gains in both the cognitive and affective dimensions of procedural writing development. Consistent with a Vygotskian reading, the gain in writing scores is better understood as developmental change within learners' Zone of Proximal Development than as a simple product of repeated practice (Poehner & Wang, 2021; Vygotsky, 1978). Before the intervention, students commonly produced fragmented steps and inconsistent technical terms, a pattern typical of novice ESP writers who understand a procedure but have not yet learned to express it logically in writing (Ferris, 2011; Hyland, 2019). The clearest gains appeared in organization and grammar, consistent with the view that mediation tailored to a learner's own developmental level, delivered during writing rather than only after it is finished, most effectively supports grammatical and organizational growth (Rassaei, 2019). A further notable finding was the relatively small gain-score variability across students, consistent with DA's premise that support calibrated to each learner's own zone of development helps narrow achievement gaps in mixed-ability ESP classrooms (Grapin & Llosa, 2022).

The large gain in self-efficacy scores is consistent with the theoretical correspondence between Bandura's (1997) four sources of self-efficacy and the four mediation stages used in this study: prompting and hinting built mastery experience by showing students that errors were solvable, modeling created vicarious learning opportunities, and feedback functioned as verbal persuasion. This interpretation must, however, be qualified by the reliability of the measurement instrument itself: the Self-Efficacy Questionnaire returned a Cronbach's alpha of .454, a low reliability value that introduces greater measurement error into both the pretest and posttest scores, weakening confidence in the precise magnitude of the reported gain even though its direction is consistent with classroom observation and with the parallel gains in writing performance and DA response.

Students' shift from a neutral baseline attitude to a strongly positive post-intervention response, the largest effect size of the three research questions, indicates that direct experience of DA, rather than the idea of it alone, produced the change in attitude. Feedback and modeling were among the most positively received elements, plausibly because immediate, dialogic feedback contrasts with the delayed, purely corrective feedback typical of conventional classrooms (Ferris, 2011), and because visible, contextual modeling reduces ambiguity in technical writing tasks (Hyland, 2019).

Three limitations constrain the interpretation of these findings. First, the pre-experimental, one-group pretest-posttest design lacked a control or comparison group; maturation, concurrent classroom instruction, and the practice effect of completing an equivalent task twice could each explain part of the gain reported above, so these numbers show that something changed alongside Dynamic Assessment, not that Dynamic Assessment caused it. Second, the sample

was a single intact class of 22 students from one vocational school, chosen purposively rather than randomly; findings from this class do not automatically transfer to other vocational ESP contexts. Third, the Self-Efficacy Questionnaire returned low internal consistency ($\alpha = .454$): the direction of the self-efficacy gain holds up, but its exact size does not.

CONCLUSION

Procedural writing scores rose from pretest to posttest, $t(21) = 26.12$, $p < .001$, $d = 2.59$. Writing self-efficacy rose too, $t(21) = 31.43$, $p < .001$, $d = 4.02$, though the low reliability of the self-efficacy instrument ($\alpha = .454$) means that number deserves less trust than the writing-score gain. Students' response to DA shifted from a neutral baseline to a strongly positive evaluation, $t(21) = 35.80$, $p < .001$, $d = 4.59$, the largest effect size observed. None of this comes from a controlled experiment: one intact class, no comparison group, no random assignment. Read the results as a promising instructional approach worth testing further, not as proof that DA caused the change. Teachers can still act on what held up here: build procedural writing instruction around the four DA mediation stages, prompting, hinting, modeling, and feedback. Future work should replicate this with a control group, a larger and more varied sample, and a psychometrically stronger self-efficacy instrument, since none of those pieces were available in the present pre-experimental design.

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