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# IMPROVING STUDENTS’ CRITICAL AND ANALYTICAL SKILLS IN THE PREPARATION FOR LANGUAGE CERTIFICATES

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**ABSTRACT** International language certificates such as IELTS, TOEFL, and Cambridge English Qualifications increasingly require candidates not only to demonstrate linguistic accuracy but also to exhibit higher-order cognitive skills, including inference making, argument evaluation, and evidence-based reasoning. However, many test-preparation courses continue to prioritize formulaic strategies, vocabulary memorization, and timed-practice drills over the explicit development of critical and analytical thinking. This study investigates the effect of a critical-thinking-integrated instructional intervention on students' critical thinking ability, analytical writing performance, and language certificate exam scores. A quasi-experimental design with a nonequivalent pretest-posttest control group was employed with 60 university students enrolled in an IELTS preparation course. The findings suggest that explicitly embedding critical thinking strategies into language certificate preparation programs substantially enhances both cognitive skills and test performance, offering practical implications for curriculum design in test-preparation contexts.

**Keywords:** critical thinking; analytical skills; language certificate; IELTS preparation; EFL instruction; quasi-experimental design

## INTRODUCTION

In an increasingly globalized academic and professional landscape, international language certificates such as the International English Language Testing System (IELTS), the Test of English as a Foreign Language (TOEFL), and Cambridge English Qualifications have become indispensable gateways for university admission, scholarship eligibility, immigration, and career advancement. Consequently, language certificate preparation has grown into a substantial pedagogical enterprise, with millions of candidates worldwide enrolling in preparatory courses each year. Yet, despite this expansion, a persistent concern among language educators and testing researchers is that many preparation programs emphasize test-taking mechanics, formulaic templates, and rote vocabulary memorization rather than the underlying cognitive

competencies that these examinations are, in principle, designed to assess.

Contemporary language certificate examinations are constructed to elicit more than surface-level linguistic knowledge. Reading and listening sections routinely require candidates to draw inferences beyond explicitly stated information, to identify the writer's or speaker's stance, to distinguish fact from opinion, and to synthesize information across multiple parts of a text. Similarly, writing tasks - particularly argumentative essays such as IELTS Writing Task 2 - demand that candidates construct a coherent line of reasoning, support claims with relevant evidence, anticipate counterarguments, and evaluate the strength of competing viewpoints. These demands correspond closely to the constructs that cognitive and educational psychologists classify under critical thinking and analytical reasoning. Despite growing scholarly interest in the relationship between critical thinking and second-language performance, relatively few empirical studies have examined this relationship specifically within the context of language certificate preparation courses, and even fewer have implemented and evaluated a structured, classroom-embedded intervention using a controlled experimental design. Most existing studies either investigate critical thinking as a general cognitive trait unrelated to any specific examination format, or they focus on academic writing in general education settings rather than the specific genre conventions and time constraints of certificate examinations. This represents a meaningful research gap: an empirically validated instructional model that integrates critical thinking strategies directly into IELTS-style reading, listening, and writing preparation, and that measures its effect using both a standardized critical thinking instrument and authentic certificate-format assessments.

The present study addresses this gap by designing, implementing, and evaluating a critical-thinking-integrated instructional intervention within an IELTS preparation course. Specifically, this study aims to (1) determine the effect of the intervention on students' critical thinking ability, (2) determine its effect on analytical writing performance, and (3) determine its effect on IELTS Reading and Writing Task 2 band scores, in comparison with conventional test-preparation instruction. It is hypothesized that students who receive explicit critical thinking instruction embedded within certificate-oriented tasks will demonstrate significantly greater gains across all three outcomes measures than students who receive conventional instruction alone.

## LITERATURE REVIEW

**Critical Thinking and Analytical Skills.** Critical thinking has been defined in various, partially overlapping ways across the educational and psychological literature. Ennis (1987) characterizes critical thinking as reasonable, reflective thinking focused on deciding what to believe or do, while Facione (1990), drawing on the Delphi consensus of experts, defines it as purposeful, self-regulatory judgment that involves interpretation, analysis, evaluation, and inference. Paul and Elder (2006) further emphasize the disciplined, self-directed nature of critical thinking, framing it as thinking about one's own thinking with the aim of improving it. Analytical skills, closely related to critical thinking, refer more specifically to the ability to break down complex information into its constituent parts, identify relationships among ideas, and draw logically defensible conclusions (Moore, 2013). Within the context of language testing,

these two constructs converge: examinees must analyze textual or aural input, evaluate the credibility and relevance of information, and construct reasoned arguments in production tasks.

**Critical Thinking in Language Certificate Examinations.** Item and task analyses of major language certificate examinations reveal a substantial cognitive-skills component embedded within ostensibly linguistic tasks. IELTS Reading, for example, includes item types such as 'Yes/No/Not Given' and matching-information tasks that require candidates to evaluate the logical relationship between a statement and the text, rather than merely locating a keyword (IELTS Partners, 2021). IELTS Writing Task 2 explicitly instructs candidates to 'present a written argument or case,' requiring the coordination of claim, evidence, and counter-argument within a coherent structure (Weigle, 2002). Cambridge English Qualifications similarly embed inferencing and evaluative reasoning across reading and use-of-English components (Cambridge Assessment English, 2020). These features suggest that success on certificate examinations is not solely a function of vocabulary range or grammatical accuracy, but is substantially mediated by test-takers' capacity for critical and analytical reasoning.

**Empirical Evidence Linking Critical Thinking and Language Performance.** Several empirical studies provide converging evidence that critical thinking ability correlates positively with second-language reading comprehension and writing quality. Alagozlu (2007) found that Turkish EFL learners with higher critical thinking dispositions produced argumentative essays with stronger voice and more coherent reasoning. Zhang (2010) demonstrated that metacognitive awareness - closely related to critical thinking - was a significant predictor of reading comprehension performance among Chinese university students. Davidson and Dunham (1997) reported measurable gains in both critical thinking scores and essay quality following explicit critical thinking instruction embedded in an EFL writing course. However, as noted above, comparatively few of these studies situate their intervention within the specific format and time constraints of a language certificate examination, which introduces additional pedagogical considerations such as strategic time allocation and genre-specific rhetorical conventions.

**Instructional Approaches for Integrating Critical Thinking.** Several pedagogical strategies have been proposed for embedding critical thinking instruction into language classrooms, including Socratic questioning, structured argument mapping, claim-evidence-reasoning (CER) frameworks for essay construction, and guided inference tasks for reading and listening comprehension (Yeh, 2004; Rafi, 2009; Barnawi, 2011). These approaches share a common pedagogical logic: rather than treating critical thinking as a generic add-on, they interleave explicit reasoning prompts directly within language-skill practice, thereby reinforcing both linguistic and cognitive development simultaneously. Building on this body of work, the present study designs an intervention that integrates such strategies directly into the reading, listening, and writing components of an IELTS preparation curriculum, and evaluates its effectiveness using a quasi-experimental design.

**Test-Taking Strategies versus Reasoning-Based Instruction.** A recurring theme in the test-preparation literature is the distinction between test-wiseness - strategic familiarity with question formats, time management, and elimination techniques - and genuine construct-

relevant ability. While test-wiseness can produce short-term score gains, particularly for candidates unfamiliar with a given exam format, its effects tend to plateau once candidates reach a baseline level of familiarity with the test. In contrast, instruction that targets the underlying cognitive construct - in this case, critical and analytical reasoning - has the potential to produce more durable improvements that generalize beyond a single exam sitting, because it strengthens the cognitive processes the examination is designed to sample rather than merely optimizing performance on a fixed set of item types. This distinction motivates the present study's focus on reasoning-based instruction rather than exclusively strategy-based test preparation, though the two approaches are not mutually exclusive and were, in practice, combined within the experimental group's curriculum.

## METHOD

### Research Design.

This study employed a quasi-experimental design with a nonequivalent pretest-posttest control group to examine the effect of critical-thinking-integrated instruction on students' critical thinking ability, analytical writing performance, and language certificate exam scores. The experimental group received an eight-week instructional intervention integrating explicit critical thinking strategies into IELTS-oriented reading, listening, and writing practice, while the control group received conventional IELTS preparation instruction covering the same content and duration but without explicit critical-thinking scaffolding.

### Participants.

Participants consisted of 60 university students (age range 18-24 years) enrolled in an intensive IELTS preparation program at a state university language center, all with an intermediate to upper-intermediate proficiency level (CEFR B1-B2) as determined by a placement test. Participants were assigned to two intact classes, which were then randomly designated as the experimental group ($n = 30$) and the control group ($n = 30$). Both groups were comparable in terms of initial proficiency level, age distribution, and prior exposure to standardized test preparation, as confirmed by an independent samples t-test on placement-test scores ($p > 0.05$).

### Instruments.

Three instruments were used to collect data: (1) an adapted, translated version of the Watson-Glaser Critical Thinking Appraisal, measuring inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments; (2) an analytical writing rubric, adapted from IELTS Writing Task 2 band descriptors, assessing task response, coherence and cohesion, and logical argumentation, scored independently by two trained raters; and (3) IELTS mock test scores for the Reading and Writing sections, administered under standardized timed conditions. Prior to the main study, all instruments were piloted with a comparable sample and evaluated for reliability, as summarized in Table 1.

**Table 1. Reliability of Research Instruments**

| SN | Instrument | Reliability Index | Category |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1 | Critical Thinking Test (adapted Watson-Glaser) | 0.81 (Cronbach's Alpha) | High |
| 2 | Analytical Writing Rubric (inter-rater) | 0.86 (ICC) | High |
| 3 | IELTS Reading Mock Test | 0.79 (KR-20) | High |
| 4 | IELTS Listening Mock Test | 0.76 (KR-20) | Acceptable |

**Procedure.**

The intervention was implemented over eight weeks, with three 90-minute sessions per week. In the experimental group, each session combined standard IELTS skills practice with explicit critical thinking scaffolding: reading and listening sessions incorporated guided inference tasks, source-evaluation questions, and Socratic-style discussion of implied meaning; writing sessions employed a claim-evidence-reasoning (CER) framework for essay planning, together with structured peer critique focused on the logical strength of arguments rather than surface-level accuracy alone. The control group covered equivalent reading, listening, and writing content and completed the same number of practice tests, but instruction followed a conventional format centered on vocabulary expansion, grammar review, and timed-practice drills without explicit critical-thinking scaffolding. Both groups completed the critical thinking test, the analytical writing task, and an IELTS mock test (Reading and Writing) as a pretest in Week 1 and as a posttest in Week 9, under identical timed conditions.

**Data Analysis.**

Data were analyzed in two stages. First, descriptive statistics (means and standard deviations) were computed for pretest and posttest scores on all measures, and normalized gain (N-gain) scores were calculated using the Hake (1998) formula to categorize improvement as low (N-gain < 0.3), moderate (0.3 <= N-gain < 0.7), or high (N-gain >= 0.7). Second, inferential statistics were applied: prerequisite tests of normality (Shapiro-Wilk) and homogeneity of variance (Levene's test) were conducted, followed by independent samples t-tests comparing posttest scores between the experimental and control groups at a significance level of $\alpha = 0.05$. Inter-rater reliability for the analytical writing rubric was calculated using the intraclass correlation coefficient (ICC).

**Sample Lesson Sequence.**

To illustrate how critical thinking strategies were embedded within the experimental group's curriculum, Table 4 outlines a representative weekly lesson sequence combining IELTS skill practice with explicit reasoning tasks.

**Table 4. Representative Weekly Lesson Sequence for the Experimental Group**

| Session | IELTS Focus | Embedded Critical Thinking Task |
|---|---|---|
| 1 | Reading - Matching Information | Guided inference task: justify each answer with textual evidence and identify unstated assumptions |

| | | |
|---|---|---|
| 2 | Listening - Multiple Choice | Source-evaluation discussion: distinguish speaker opinion from stated fact |
| 3 | Writing - Task 2 Planning | Claim-evidence-reasoning (CER) outlining and structured peer critique of argument strength |

## RESULTS

*Descriptive Results.*

Table 2 presents the descriptive statistics for critical thinking scores, IELTS Reading band scores, and IELTS Writing Task 2 band scores for both groups. The experimental group showed markedly larger gains across all three variables compared to the control group. Critical thinking scores in the experimental group increased from a pretest mean of 46.8 to a posttest mean of 79.4 (N-gain = 0.61, high category), while the control group increased only from 47.1 to 57.6 (N-gain = 0.20, low category). A similar pattern emerged for IELTS Reading band scores (experimental N-gain = 0.55 versus control N-gain = 0.18) and Writing Task 2 band scores (experimental N-gain = 0.54 versus control N-gain = 0.15).

**Table 2. Descriptive Statistics of Pretest, Posttest, and N-gain Scores**

| Variable | Group | Pretest (M) | Posttest (M) | N-gain |
|---|---|---|---|---|
| Critical Thinking Score | Experimental | 46.8 | 79.4 | 0.61 |
| Critical Thinking Score | Control | 47.1 | 57.6 | 0.20 |
| IELTS Reading Band | Experimental | 5.4 | 6.9 | 0.55 |
| IELTS Reading Band | Control | 5.5 | 6.0 | 0.18 |
| IELTS Writing Task 2 Band | Experimental | 5.2 | 6.7 | 0.54 |
| IELTS Writing Task 2 Band | Control | 5.3 | 5.8 | 0.15 |

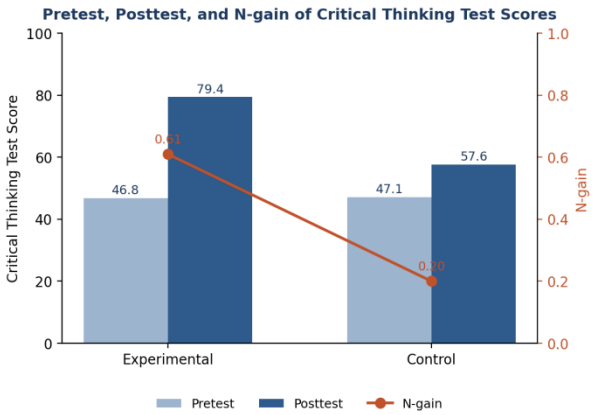


**Figure 1. Pretest, posttest, and N-gain of critical thinking test scores for the experimental and control groups**

*Inferential Results.*

Prior to hypothesis testing, Shapiro-Wilk tests confirmed that posttest scores were normally distributed ($p > 0.05$) for all variables, and Levene's test confirmed homogeneity of variance ($p > 0.05$), satisfying the assumptions for independent samples t-tests. As shown in Table 3, posttest scores for critical thinking, IELTS Reading, and IELTS Writing Task 2 were all significantly higher in the experimental group than in the control group ($p < 0.001$ for all comparisons), indicating that the observed differences are unlikely to be due to chance.

**Table 3. Independent Samples t-Test Results for Posttest Scores**

| Variable | t-value | df | Sig. (2-tailed) |
|---|---|---|---|
| Critical Thinking Posttest | 8.42 | 58 | 0.000 |
| IELTS Reading Band Posttest | 6.15 | 58 | 0.000 |
| IELTS Writing Band Posttest | 5.93 | 58 | 0.000 |

*Relationship Between Critical Thinking and Exam Performance.*

A supplementary Pearson correlation analysis was conducted on the posttest data from both groups combined ($N = 60$). Critical thinking scores were significantly and positively correlated with IELTS Reading band scores ($r = 0.68$, $p < 0.001$) and with IELTS Writing Task 2 band scores ($r = 0.71$, $p < 0.001$), suggesting a moderately strong association between students' critical thinking ability and their performance on certificate-format tasks that require inference and argumentation.

## CONCLUSION

This study set out to examine whether explicitly integrating critical thinking instruction into language certificate preparation courses improves students' critical thinking ability, analytical writing performance, and certificate-format exam scores. The results provide clear evidence that students who received a critical-thinking-integrated instructional intervention achieved significantly greater gains in critical thinking, IELTS Reading, and IELTS Writing Task 2 band scores than students who received conventional test-preparation instruction, with moderately strong positive correlations between critical thinking ability and exam performance. These findings suggest that critical and analytical thinking should not be treated as competencies separate from language certificate preparation, but rather as core instructional targets that can be systematically embedded within reading, listening, and writing practice. Language centers and test-preparation instructors are encouraged to incorporate explicit reasoning scaffolds - such as guided inference tasks, argument evaluation activities, and claim-evidence-reasoning frameworks for essay writing - into their curricula. Future studies should extend this line of research through longitudinal designs, larger and more diverse samples, and direct measurement of performance on official, externally administered certificate examinations.

Future recommendations should also consider the role of learner variables such as first-language literacy background, prior exposure to argumentative writing, and motivation, all of which may moderate the effectiveness of critical-thinking-integrated instruction and warrant further investigation in subsequent studies. Replicating this design across different certificate examinations, such as TOEFL iBT or Cambridge C1 Advanced, would further help establish the generalizability of the intervention beyond the IELTS context examined here.

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