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The 'Process-Outcome Gap' of Inquiry-Based Learning in IELTS Writing Instruction: A Multi-Level Conceptual Framework

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Abstract

The Inquiry-Based Learning (IBL) in language teaching has been proven as an effective strategy according to considerable empirical research conducted by scholars, but many of which employ standardized test scores as the sole measure. However, while IBL has a big impact on students' writing awareness, self-efficacy, and motivation, it does not always translate into immediate score improvements. This paper proposes the conceptual framework of the 'Process-Outcome Gap ', which has a large impact on the difference between the immediate effects at multiple levels, including cognition, motivation, and self-efficacy, and the potentially delayed outcome effects observed in the writing exams. Zooming in on the teaching context of IELTS Writing Task 2 – essay writing, and due to its popularity globally, this paper indicates that its time pressure and high-stakes nature make this gap particularly salient. This paper explains how IBL influences IELTS writing capacity through integrating Swain's Output Hypothesis, Krashen's Input Hypothesis, Bandura's Social Cognitive Theory, and Deci and Ryan's Self-Determination Theory. This multi-level conceptual work suggests that IBL firstly affects students' mental states and learning processes and ultimately influences students' writing performance through input-output cycles, satisfying students' basic mental needs, and activating their self-efficacy sources. This paper further discusses how the conceptual work influences IELTS writing teaching and learning, assessment design, and further research. By advocating for the introduction of a process-oriented exam perspective in IBL writing research, this paper further discusses the implications of this framework for IELTS writing instruction, assessment design, and future research.

Keywords: Ielts Writing, Inquiry-Based Learning, Process-Outcome Gap, Writing Motivation, Writing Self-Efficacy

Introduction

In recent years, the inquiry-based learning method (IBL) has received more attention than before in language teaching. Essentially, this method prioritizes a four-phase learning experience – questioning, inquiry, collaboration, and reflection. Students should proactively construct their knowledge following the four stages, rather than being passively taught by teachers. This view is closely in line with Piaget's (1971) constructivist epistemology and

Vygotsky's (1978) sociocultural theory, and a series of studies across a range of educational contexts have demonstrated that this method helps to enhance learners' writing performance (Wale & Bogale, 2021; Huang et al., 2024; Shahkarami & Alavinia, 2025). The literature has also discussed how to define and operationalize IBL. Tapping into a systematic review of the inquiry-based learning cycles, five phases were identified by Pedaste et al. (2015), which are orientation, conceptualization, investigation, conclusion, and discussion.

Bruce and Bishop (2002) provided a more streamlined model consisting of five stages: asking, investigating, creating, discussing, and reflecting. At the same time, Banchi and Bell (2008) proposed four levels of the inquiry-based learning method based on the level of teacher's control and students' self-autonomy: confirmation inquiry, structured inquiry, guided inquiry, and open inquiry. Collectively, these insightful frameworks serve as practical guidance for teachers and educators who need to design IBL instruction and for carrying out studies on it. IELTS Writing Task 2 sets out the educational setting with three distinctive features: the time pressure, genre convention, and the high-stakes nature of the test. Firstly, the candidates are required to produce an essay of at least 250 words within 40 minutes, which makes exacting demands on fluency, grammatical range, vocabulary range, coherence and cohesion. Second, genre convention means the writing task has explicit scoring criteria – task response, coherence and cohesion, lexical resources, and grammatical range and accuracy, and its demands on accuracy and genre conformity are much higher than general academic writing. Third, IELTS scores directly affect students' chances of studying abroad, often leading to stress, anxiety, and a strong test-oriented mindset. Given these features, it may take longer for IBL in IELTS writing teaching to manifest its effects in score gains. Learners not only need to adjust their way of learning, but they also have to turn what they learn from the inquiry phase into a written product that can meet the scoring criteria in limited time.

However, most empirical studies on IBL in writing teaching have discovered a gap between process and outcome. They typically adopt quasi-experimental research designs and compare post-test scores between experimental and control groups, and then make judgement whether this method is effective on the basis. Besides, these studies mainly use writing scores to measure outcomes. What makes it difficult and complicated is when moving from statistical significance to the classroom teaching setting. Learners in IBL - based classrooms demonstrate more active writing processes and greater confidence, and they are more willing to express their thoughts, but these changes take longer to reflect in their test scores.

This paper describes the phenomenon mentioned above, the 'Process-Outcome Gap.' This term means that there is a systematic discrepancy both in timing and in mechanism between the immediate and observable changes, which indicates that teaching instruction results in effects at the process and mental levels, yet changes in standard exams are delayed and constrained on multiple levels. This concept does not deny the value of the IBL method, but argues that considerations about multiple levels and various time scales should be taken.

This paper aims to reasonably explain how the IBL method influences IELTS writing capacity and to make clear the theoretical grounds of the Process-Outcome Gap by establishing a multi-level conceptual framework. Secondly, this paper reviews empirical studies on IBL in writing instruction and recognizes its tendency to emphasize outcomes rather than processes. Next, it integrates four theoretical perspectives, followed by the fourth section that highlights

its essential mechanisms and propositions. The fifth section discusses what the conceptual framework means for IELTS writing instruction, exams, and studies, with a final conclusion.

Literature Review: Empirical Research on IBL in Writing Instruction and Its Bias

Evidence for the Effectiveness of IBL in Writing Instruction

Several studies have reported positive results for IBL in writing instruction. Wale and Bogale (2021) worked with 62 Ethiopian pharmacy undergraduates and used IELTS Task 2 scoring criteria to evaluate the intervention. They found that the experimental group outperformed the control group on the post-test by a significant margin. Their qualitative data also showed that IBL helped students 'discover writing topics of interest,' 'collect and evaluate relevant information,' and 'complete the final text based on peer and teacher feedback.' According to Shahkarami and Alavinia's investigation (2025), they made a comparison among 45 EFL students in Iran by conducting teacher-guided IBL and learner-autonomous IBL in expository writing. It turned out that both experimental groups outperformed the control groups by a significant margin, with little difference between the two IBL conditions, which suggests that adherence to the essential principles of IBL – problem-oriented, student-centered, and collaborative – outweighs the degree of teacher control.

In the Chinese context, Huang et al. (2024) conducted research on 48 second-year English students by integrating the IBL method within flipped classrooms and tech-supported formative assessment. With a large effect size, learners' post-test writing scores significantly outweighed their pre-test scores. The qualitative analysis pointed to some of the cognitive mechanisms at work: students learned 'how to effectively search online with peers to answer teacher questions,' 'clarify the structure of academic writing,' and 'distinguish between 'claims' and 'evidence.'"

In the high school context, Sukserm and Wasanasomsithi (2023), working with 20 Thai eleventh-grade students, conducted a 12-week instructional intervention combining IBL with visual literacy. The results showed significant improvement in post-test total scores and in the four sub-dimensions of content, organization, grammatical structure, and vocabulary. Qualitative data indicated that the integration of IBL and visual literacy promoted students' active participation and deep learning. Lina et al. (2026), working with 52 eleventh-grade students in Indonesia, compared the effects of IBL and expository teaching methods on analytical expository writing, and found that IBL had positive effects in all five dimensions: content, organization, vocabulary, language use, and mechanics.

It is worth noting that the writing genres covered by the above studies include expository writing (Shahkarami & Alavinia, 2025), academic writing (Wale & Bogale, 2021), argumentative writing (Huang et al., 2024; Lina et al., 2026), and analytical writing (Sukserm & Wasanasomsithi, 2023), but none used IELTS Task 2 as the writing task type. Although Wale and Bogale (2021) used IELTS Task 2 scoring criteria as the evaluation instrument, their participants were Ethiopian pharmacy undergraduates and the intervention content was general academic writing rather than the genre features of IELTS Task 2. The 'dual constraints' of IELTS Task 2 –time limits and strict scoring criteria –make it a special context in IBL writing research that has not yet been fully explored.

The "Outcome Bias" of Existing Research and Its Limitations

The studies mentioned above offer multi-context evidence for the effectiveness of IBL, yet they share a common feature in the methodological orientation that they regard the standardized writing test scores as the principal or even sole outcome variable. This paradigm carries limitations at three levels.

One issue stems from how outcome variables are often condensed into a single measure. Standardised test scores capture the eventual quality of language output, but changes emerging during learning are not easily manifested there because writing ability is made up of cognitive, motivational, meta-cognitive, and affective abilities. If scores are used as the sole outcome variable, the changes at the process level which may carry enduring value end up going unnoticed systematically. The second issue regards the time scale employed. In most studies, intervention periods span 8 to 12 weeks, and post-tests are delivered promptly afterwards. The assumption is implicit in this design that teaching effects will manifest as measurable score changes in a short period. However, the process of internalizing writing skills is a gradual process which definitely does not complete overnight. Swain's (1985) Output Hypothesis suggests that 'pushed output' does buttress language acquisition, but consistent practice and feedback are warranted along the way of learning. An eight-week teaching intervention may be sufficient for learners to adapt to the IBL approach; whether it suffices for learners to move from 'assisted success' to 'independent performance' would be a separate issue. This temporal problem is more pronounced in the IELTS context. Not only are students required to assimilate the inquiry approach, but they also need to convert inquiry gains into written output that meets the scoring criteria under the strict time constraints. The last problem concerns the lack of mechanistic explanation. In these studies, the findings demonstrate that the IBL group scores much higher than the control group; the justification is intended to conclude with the claim that IBL is effective. More fundamental questions lie underneath, unanswered: through what mechanisms does IBL have an impact on writing scores? How do these mechanisms interrelate? Why do effects seem substantial under some conditions but not others? Without explaining the underlying mechanism, both the applicability of research results and the specificity of educational implications remain limited.

The Proposal of the 'Process-Outcome Gap'

Based on the above analysis, this paper proposes the concept of the 'Process-Outcome Gap' to describe a phenomenon neglected by existing research in IBL writing instruction: there is a systematic inconsistency between changes produced by instructional intervention at the process and psychological levels and changes at the outcome level in standardized assessments.

This concept contains three core claims:

Level distinction: The effects of IBL should be distinguished among the 'process level' (writing behavior, strategy use, metacognitive monitoring), the 'psychological level' (motivation, self-efficacy, anxiety), and the 'outcome level' (standardized test scores). Changes at the three levels may not be synchronized.

Temporal delay: Changes at the process and psychological levels may occur before changes at the outcome level. Changes at the outcome level require sustained changes at the process

and psychological levels as mediators, and are moderated by factors such as assessment instrument sensitivity, intervention duration, and individual differences.

Mechanistic mediation: IBL's influence on the outcome level is not direct, but indirectly realized through mediating mechanisms at the process and psychological levels. Ignoring these mediating mechanisms makes it difficult to explain why 'effective' instructional interventions do not necessarily produce 'significant' score improvements.

Theoretical Integration: A Multi-Level Mechanism Explaining IBL's Influence on IELTS Writing Ability

The explanation of the 'Process-Outcome Gap' requires multi-theoretical integration. A single theory can hardly cover the three levels of cognition, motivation, and self-efficacy simultaneously. This paper integrates four theoretical resources to construct a multi-level conceptual framework.

Input Hypothesis and Output Hypothesis: Language Acquisition Mechanisms

What drives language acquisition, according to Krashen's (1982, 1985) Input Hypothesis, is exposure to comprehensible input—material that sits just above the learner's current level. Such input is readily available in an IBL classroom, where students read, listen, and discuss during the inquiry phase. The amount of input, however, is not what sets IBL apart. Questions raised by students themselves must be answered, and to do so they must search out, sift through, and weigh up information. Passively receiving input is not the same thing at all.

Input alone, as Swain's (1985) Output Hypothesis makes clear, will not carry learners very far. Nothing can replace what 'pushed output' contributes. Three functions are performed by output: noticing and triggering, hypothesis testing, and metalinguistic reflection. In IBL, these functions are repeatedly activated as students move through a writing cycle—drafting, receiving peer feedback, revising, receiving teacher feedback, and producing a final draft.

How IBL supports language acquisition can be understood by bringing the two hypotheses together. The material and linguistic resources that writing draws on are supplied by inquiry-phase input. Gaps in language, meanwhile, are noticed by learners as a result of writing output; hypotheses get tested, and metalinguistic reflection takes place. This mechanism does not work quickly, though. Internalisation of input and stabilisation of output both require time. The temporal foundation of the 'Process–Outcome Gap' lies precisely here.

In IELTS writing instruction, the time pressure of the input-output cycle is even more prominent. Students need to complete the entire process from 'analyzing the prompt –brainstorming –writing – checking' within 40 minutes, which means that input during the inquiry phase must be quickly converted into writing output. If the inquiry phase of IBL occupies too much class time, it may squeeze the time for writing training. Therefore, in the IELTS context, the efficiency of the input-output cycle is particularly critical, and this also constitutes a special source of the 'Process-Outcome Gap' in IELTS instruction.

Self-Determination Theory: Motivational Mechanisms

Self-Determination Theory proposed by Deci and Ryan's (1985) distinguishes three types of motivation which are intrinsic motivation, extrinsic motivation, and amotivation, and points

out that the satisfaction of the three basic psychological needs of autonomy, competence, and relatedness is the condition for the maintenance of intrinsic motivation.

There is a natural fit between IBL and Self-Determination Theory where the 'topic choice' in IBL corresponds to the need for autonomy and the 'inquiry-discovery' process corresponds to the need for competence. The'collaborative discussion' corresponds to the need for relatedness. When the IBL classroom provides students with opportunities to choose writing topics, inquire autonomously, and collaborate with peers, the three basic psychological needs are satisfied and intrinsic motivation is enhanced.

In the writing context, the role of motivation is not to directly improve writing quality, but to indirectly influence writing performance through mediating behaviors such as increasing writing engagement, extending writing time, and promoting strategy use. It means that changes at the motivational level are required to be converted into persistent behavioral commitment so that these changes can eventually shape the outcome. It is worth noting that the conversion process requires time.

IELTS writing is high-stakes, which has a bearing on learners and their chance of studying abroad, parents, school, and, most importantly, therefore possibly undercutting whatever intrinsic motivation the IBL approach might otherwise nurture. As long as writing is regarded as 'test-preparation' instead of 'a chance to express your opinion,' the fulfillment of needs for autonomy and competence can be undermined. Potentially, in the IELTS context, IBL's motivational impact may end up being weaker than in general EFL writing settings – or it may simply take longer to show up.

Social Cognitive Theory: Self-Efficacy Mechanisms

Bandura's (1986, 1997) Social Cognitive Theory defines self-efficacy as an individual's belief in their ability to organize and execute specific actions to achieve goals. In the writing context, writing self-efficacy refers to students' confidence in completing writing tasks.

Sources of self-efficacy include four types: mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal. The IBL classroom provides activating conditions for these four sources: students experience success in inquiry and writing (mastery experiences); observe peers' writing and discussion (vicarious experiences); receive teacher and peer feedback (verbal persuasion); and write in a low-anxiety collaborative environment (emotional arousal).

Self-efficacy's influence on writing performance is likewise realized through mediating mechanisms: students with high self-efficacy are more willing to engage in writing, persist longer in the face of difficulties, and use strategies more effectively. These behavioral changes require time to be reflected in writing quality.

The IELTS writing scoring criteria provide a clear referential framework for self-efficacy, but may also bring negative effects. When students directly link self-efficacy to scores, low scores may weaken efficacy beliefs. Mastery experiences and vicarious experiences in the IBL classroom need to form a positive connection with IELTS scoring criteria in order to effectively enhance writing confidence.

The Logic of Theoretical Integration

The above four theories are not simply additive, but respectively explain different levels of IBL's influence on writing ability:

The Input-Output Hypotheses explain the cognitive level: how IBL promotes language acquisition through the cycle of input and output.

Self-Determination Theory explains the motivational level: how IBL enhances writing motivation by satisfying basic psychological needs.

Social Cognitive Theory explains the self-efficacy level: how IBL enhances writing confidence through four sources of efficacy.

These three levels together constitute the mediating mechanisms through which IBL influences writing performance. Their changes occur before changes at the outcome level and require sustained action to ultimately influence standardized test scores. This is the theoretical root of the 'Process-Outcome Gap.'

Multi-Level Conceptual Framework

Based on the above theoretical integration, this paper proposes a multi-level conceptual framework.

Core logic of the framework:

Instructional intervention level: IBL instruction - with guided inquiry as the typical form as the independent variable.

Process level: changes in the writing process - from template dependence to active construction, from blind writing to logical organization.

Psychological level: motivational changes - enhanced intrinsic motivation, reduced amotivation, and self-efficacy changes - enhanced writing confidence, reduced anxiety.

Outcome level: IELTS Writing Task 2 test scores - Task Response, Coherence and Cohesion, Lexical Resources, Grammatical Range and Accuracy.

Moderating variables: intervention duration, assessment instrument sensitivity, student's individual differences in language proficiency, autonomous learning ability, and IELTS-context-specific moderating variables - time pressure, strictness of scoring criteria, high-stakes nature of the test.

Mediating pathways: changes at the process and psychological levels are the mediating mechanisms through which IBL influences the outcome level.

Core propositions of the framework:

Proposition 1: IBL's influence on IELTS writing performance is indirect, realized through mediating mechanisms at the process and psychological levels.

Proposition 2: Changes at the process and psychological levels occur before changes at the outcome level, with a temporal delay between them.

Proposition 3: Intervention duration, assessment instrument sensitivity, time pressure, and strictness of scoring criteria jointly moderate the width of the 'Process-Outcome Gap.' In IELTS writing instruction, the greater the time pressure and the stricter the scoring criteria, the wider the gap; the longer the intervention and the more sensitive the assessment instrument, the narrower the gap.

Proposition 4: Student individual differences, such as autonomous learning ability and language proficiency, moderate the strength of IBL's influence on the process and psychological levels.

Regarding the implementation form of IBL, this paper advocates guided inquiry rather than fully open inquiry. According to Banchi and Bell's (2008) four-level classification, guided inquiry strikes a balance between teacher support and student autonomy, providing necessary scaffolding for students while retaining the core features of inquiry. For high school learners who needs to prepare IELTS exams, with autonomous learning ability still developing, completely open inquiry may lead to cognitive overload, lack directions and loose focus. Moreover, the IELTS writing task itself has explicit genre conventions and scoring criteria, which also requires teachers to maintain appropriate control over the 'question framework' to make sure learners can score the best they can.

Discussion and Implications

Implications for IELTS Writing Instruction

First, IBL is worth implementing, but sufficient time must be given. Teachers should recognize that the effects of IBL are first reflected in students' writing processes and psychological states, and that score improvement may take longer. The value of IBL should not be denied because scores do not change significantly in the short term.

Second, collaborative learning needs to be aligned with IELTS scoring criteria. Collaborative activities in IBL should not remain merely at the level of 'discussing ideas,' but should guide students to conduct peer assessment according to the IELTS scoring criteria (TR, CC, LR, GRA). This can both leverage the advantages of collaborative learning and help students internalize the scoring criteria.

Third, the teacher's role needs to change. From knowledge transmitter to facilitator and scaffolding provider. Guided inquiry, rather than fully open inquiry, is more suitable for high school IELTS-preparation students, because their autonomous learning ability is still developing.

Fourth, process-oriented assessment should be combined with IELTS preparation. To assist teachers in measuring the direct impacts of IBL at the process and psychological levels, it is necessary to employ a range of tools, for example, writing portfolios, motivation tracking, and self-efficacy questionnaires. Meanwhile, teachers should guide learners to link inquiry gains with IELTS scoring criteria, thereby reducing the 'Process-Outcome Gap'.

Implications for Assessment Design

The 'Process-Outcome Gap' sets genuine challenges for assessment design in IELTS writing. The actual effects of the IBL approach are highly likely to be compromised overall if the standardised test scores are the only measure adopted. This paper argues for several adjustments to the framework. First, process-driven assessment should be built into IBL writing teaching, paying attention to various levels such as writing strategies, motivational change, and metacognitive monitoring. Second, research should measure learners' progress through multiple phases instead of gathering data only before and after the test, so that the trajectory of change can be reasonably reflected (Schoonenboom, 2024). Third, outcome variables need to be adapted by level: measures of process level, psychological level, and outcome level should be maintained separately, rather than letting outcome-level indicators represent everything. In IELTS writing teaching, assessment design is also required to consider how time stress and scoring criteria regulate IBL's effects. Researchers can employ multi-time-point measurement to track students' writing performance changes under various levels of time stress, which could produce a more precise trajectory of the 'Process-Outcome Gap.'

Implications for Future Research

Firstly, it is beneficial to extend the intervention period, building in a couple of measurement points. Researchers can run a full term or a full academic year, and learners' writing performance could be measured at the start point, at the mid-point, at the end, and again one or two months later, to track the lasting impact. That way, the trajectory of IBL effects in terms of time can actually be examined. In the IELTS context, the point at which the 'Process-Outcome Gap' begins to reduce deserves particular attention and should be carefully analyzed. Secondly, the sample size should be expanded because small-sample studies lack sufficient statistical strength and have difficulty examining small to medium effects. Based on that, researchers are encouraged to carry out collaborative research across multiple institutions and classes. Thirdly, sub-dimensional analysis should be conducted. The four scoring aspects of IELTS writing - task response (TR), cohesion and coherence (CC), lexical resources (LR), and grammatical range and accuracy(GRA) - may vary in their responsiveness to IBL. Sub-dimensional analysis is conducive to revealing the specific points of IBL's influence. Lastly, it is necessary to employ mixed-methods designs. Quantitative data reveal its effectiveness, while qualitative data explain the reason why it is effective and how it is effective. According to Schoonenboom (2024), to understand the 'Process-Outcome Gap', the key is to integrate the two.

Conclusion

This paper proposes the concept of the 'Process-Outcome Gap' to describe a phenomenon neglected by existing research in IBL in IELTS writing instruction: there is a systematic inconsistency between the immediate changes produced by instructional intervention at the process and psychological levels and the delayed changes at the outcome level in standardized assessments. Tapping into the Input-Output Hypotheses, Self-Determination Theory, and Social Cognitive Theory, this paper aims to establish a multi-level conceptual framework to explain how IBL fosters IELTS writing ability. This conceptual framework indicates that teaching intervention has a bearing on the writing process and psychological level first; through input-output cycles, learners' basic psychological needs are satisfied, and learners' self-efficacy sources are also activated; this then has an often delayed impact on learners' writing performance.

This framework makes theoretical contributions to the shift away from asking merely if IBL works, and it emphasizes at which level it works and analyzes the mechanisms through which it works, and the time scales over which IBL's effects manifest. Virtually, it suggests that both educators and assessors should not make judgements on IBL by scores. Its immediate effects at the process and psychological levels merit attention too.

The 'Process-Outcome Gap' does not mean the IBL approach is less effective than it was thought. It shows a tension that generally exists between pedagogical intervention and standardized assessment. In IELTS writing teaching, it is obvious that both stakes and time stress are quite high; this gap becomes especially visible. Acknowledging the existence of the gap is a very important first step because that can lead to a more precise understanding of IBL's effects and urge educators and assessors to design the IELTS writing instruction and assessment more reasonably and sensibly.

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