The Auxiliary Effect of Large Language Models on the Ability to Expand Topics in IELTS Speaking

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Abstract: An IELTS Speaking band 5.5 represents a typical proficiency bottleneck for intermediate-level test-takers aiming to reach the widely targeted band 6.0 entry requirement of overseas institutions. Test-takers at this band are primarily hindered by insufficient topic expansion ability, manifested as narrow thinking, repetitive expressions and loose logic. To verify the auxiliary effect of Large Language Models (LLMs) on improving such ability among this group of learners striving for band 6.0, this study is grounded in the Output Hypothesis of second language acquisition proposed by Swain (1985) [2] and Interaction Feedback research reviewed by Nassaji (2020) [3]. Ten English majors with an IELTS Speaking band of 5.5 were selected as research subjects and divided into an experimental group (training with LLM and corpus feedback) and a control group (traditional exam preparation training) for an 8-week comparative experiment. A multi-dimensional feedback system covering breadth of topic coverage, lexical diversity, syntactic richness and logical coherence was constructed, and the effectiveness was verified through mock test scoring and quantitative corpus analysis. The results show that the auxiliary strategy integrating LLMs and corpora can significantly boost the topic expansion capacity of band-5.5 test-takers and precisely address their score bottlenecks toward band 6.0. This study provides operable preparation schemes for intermediate-level IELTS Speaking candidates and enriches empirical research on the application of LLMs in second language oral acquisition.

Keywords: Large Language Models; IELTS Speaking; Topic Expansion; Corpus; Band-5.5 Test-Takers

1. Introduction

1.1 Research Background

Amid the global trend of overseas study, the IELTS test has become a core language requirement for admission to international institutions, with numerous overseas universities setting an IELTS Speaking score of 6.0 as the minimum entry standard. A large number of domestic test-takers are persistently stuck at band 5.5 in IELTS Speaking, a critical intermediate proficiency stage on the path to band 6.0 admission standards. Learners at this band have solid foundational language skills but struggle with topic expansion: they have no obvious lexical or grammatical flaws, yet fail to elaborate on topics with sufficient depth. The core gap between band 5.5 and band 6.0 lies in topic extension, detailed illustration and logical coherence. The rapid development of Large Language Models such as ChatGPT and iFLYTEK Spark has provided intelligent tools for language learning, whose interactive generation and real-time feedback functions fit the demands of oral output training.

Current domestic and international research mostly explores the application of LLMs in general English learning or writing, while empirical studies specifically targeting band-5.5 intermediate IELTS Speaking candidates are scarce. Moreover, there is a lack of a closed-loop training system consisting of “corpus input–oral output–quantitative LLM feedback”. Against this backdrop, empirical research on LLM-assisted topic expansion for IELTS Speaking carries important practical and academic value.

1.2 Research Significance

1.2.1 Theoretical significance

This study enriches research on the application of LLMs in second language oral acquisition and supplements theories related to real-time corpus feedback for oral practice. It constructs quantitative feedback dimensions aligned with the official IELTS Speaking marking criteria,

offering references for subdivided research on second language acquisition among English majors and filling the research gap regarding intermediate-band IELTS Speaking learners.

1.2.2 Practical significance

1) It precisely targets the pain points of insufficient topic expansion for band-5.5 IELTS Speaking test-takers and delivers actionable exam preparation strategies to help them break through the critical band 6.0 score bottleneck.

2) The LLM-corpus integrated feedback system developed in this research can serve as an intelligent auxiliary tool for IELTS Speaking teaching and accommodate personalized training needs.

3) It verifies the application value of LLMs in specialized oral training for standardized language tests and promotes the scenario-based implementation of intelligent language learning tools.

1.3 Domestic and International Research Status

1.3.1 Domestic research status

Domestic academic exploration of LLMs in English learning presents diversified trends yet suffers from clear limitations in research focus and depth. In vocabulary acquisition, scholars have confirmed that models like ChatGPT and iFLYTEK Spark can improve vocabulary retention, yet most studies focus on receptive skills rather than cultivating oral topic extension ability. Research on grammar and writing centers on the models' grammar correction and sentence rewriting functions, with subjects limited to general English learners instead of IELTS-specific candidates. Studies on IELTS Speaking mostly involve generalized assistance such as pronunciation correction and material accumulation, while empirical research focusing on the core competence of topic expansion is extremely rare.

The Chinese Learner English Corpus (CLEC) established domestically [1] is a written learner corpus collecting written English samples from Chinese EFL learners; it mainly analyzes common written linguistic errors and lacks alignment with IELTS Speaking marking criteria, nor does it contain annotated oral corpora targeting the pain points of band-5.5 test-takers. Existing feedback is mostly qualitative description lacking quantitative indicators and fails to incorporate core second language acquisition theories, resulting in insufficient scientificity and practicality.

1.3.2 International research status

Overseas research on corpus application in second language oral acquisition has formed a mature system. Relying on corpora including ELICIT, the BNC oral sub-corpus and LINDSEI (a learner interview oral corpus storing spontaneous oral dialogues from L2 learners), the Data-Driven Learning (DDL) model has been established, generating logical frameworks for topic expansion such as "claim, illustration, extension" [4]. Existing studies have proven that corpora can improve the standardization of oral expression, yet they focus on general second language oral acquisition with low matching degree between corpus content and high-frequency IELTS topics, making them unsuitable for direct IELTS exam preparation.

Research on LLM application mainly concentrates on academic writing and general language optimization. Studies have confirmed that GPT-4 can enhance the logic and argument depth of academic papers [6], and scaffolded LLM teaching improves writing quality [7]. However, specialized research on IELTS Speaking remains blank: no deep integration of LLMs and corpora has been realized, nor have closed-loop training programs been designed. Research subjects are mostly advanced learners or native speakers, and feedback content fails to match the language proficiency boundary of band-5.5 test-takers without alignment with official IELTS Speaking marking standards, decoupling research outcomes from exam preparation demands. Some scholars have conducted corpus-based research on topic expansion frameworks for second language speaking [5], yet no operable training schemes supported by intelligent feedback tools have been developed.

1.4 Research Objectives and Content

1.4.1 Research objectives

1) Identify the core pain points of topic expansion for band-5.5 IELTS Speaking learners.

2) Verify the actual auxiliary effect of LLMs on improving test-takers' topic expansion ability in IELTS Speaking.

3) Construct a real-time feedback strategy system integrating LLMs and IELTS Speaking corpora tailored to band-5.5 candidates.

1.4.2 Research content

1) Sort out high-frequency IELTS Speaking

topics (education, technology, daily life, etc.) and core requirements for topic expansion specified in the official IELTS Speaking marking criteria.
2) Conduct a comparative analysis of oral corpora from band-5.5 test-takers and high-scoring candidates to extract specific pain points including narrow thinking, repetitive expressions and disjointed logic.
3) Build a specialized IELTS Speaking corpus containing high-scoring expressions and logical frameworks and select suitable Large Language Models.
4) Design a four-dimensional feedback system covering breadth of topic coverage, lexical diversity, syntactic richness and logical coherence.
5) Validate the effectiveness of the auxiliary strategy through an 8-week comparative experiment.

1.5 Research Methods and Innovations

1.5.1 Research methods
1) Literature Research Method: Review literature on second language acquisition, LLM application and corpus feedback to lay a theoretical foundation for this study.
2) Corpus Analysis Method: Collect oral corpora from band-5.5 test-takers and high-scoring IELTS candidates to compare differences across the four dimensions of topic expansion.
3) Empirical Research Method: Set up an experimental group and a control group for an 8-week intervention experiment, and verify the strategy's effectiveness through mock tests and corpus analysis.
1.5.2 Research innovations
1) Innovative Research Perspective: Focus on the subdivided pain point of "topic expansion" in IELTS Speaking, filling the empirical research gap of LLM-corpus integrated feedback in this field.
2) Precise Target Group: Target band-5.5 intermediate-level test-takers, distinct from generalized English learning research, delivering more targeted feedback strategies.
3) Applicable Practical Scenarios: Translate theoretical research into operable IELTS preparation strategies, balancing academic value and practical utility.

2. Theoretical Foundations

2.1 Core Second Language Acquisition Theories

2.1.1 Output hypothesis
Proposed by Swain (1985) [2], the Output Hypothesis argues that language output serves as a pivotal link in second language acquisition, fulfilling three core functions: noticing linguistic gaps, testing expression hypotheses and metalinguistic reflection. During oral output practice, learners can identify their own linguistic deficiencies, test the validity of their expressions and reflect on linguistic forms, thereby optimizing output quality. IELTS Speaking topic expansion training essentially constitutes oral output practice, providing an applicable scenario for the Output Hypothesis.
2.1.2 Interaction feedback theory
Interactional feedback has long been recognized as a supportive factor for second language acquisition. Nassaji (2020) published a comprehensive review summarizing existing empirical evidence on interactional feedback and discussing major methodological challenges in evaluating its learning effectiveness [3]. Traditional oral feedback suffers from delays and subjectivity, while the real-time, personalized feedback provided by LLMs aligns with the core tenets of interactional feedback research and can accurately target learners' pain points to boost training efficiency.

2.2 Mechanisms of LLMs in Language Learning

Trained on massive corpora, Large Language Models possess capabilities of text generation, semantic comprehension and logical reasoning. Their core functional mechanisms in oral training include:
1) Idea Generation: Produce multi-angle thinking frameworks based on given topics to resolve learners' narrow thinking.
2) Language Optimization: Offer lexical substitution and sentence rewriting suggestions to reduce repetitive expressions and monotonous sentence structures.
3) Logical Organization: Detect logical flaws, supplement cohesive devices and construct clear argumentative frameworks.
4) Real-time Feedback: Quantitatively assess oral output quality and deliver personalized improvement plans to form a closed training loop.

2.3 Principles of Corpus-Assisted Second Language Oral Acquisition

Corpora collect and annotate authentic linguistic data to provide learners with standard, native-like linguistic input. Under the Data-Driven Learning (DDL) model [4], learners identify gaps between their own output and high-scoring corpus samples to imitate authentic language usage. Specialized IELTS Speaking corpora can precisely match exam topics and official marking criteria, extract high-scoring expressions and logical frameworks, and provide data support for LLM feedback to ensure feedback content aligns with IELTS preparation demands.

3. Analysis of Topic Expansion Pain Points for Band-5.5 IELTS Speaking Test-Takers

3.1 High-Frequency IELTS Speaking Topics and Expansion Requirements

IELTS Speaking consists of three sections: Part 1 (daily casual topics), Part 2 (individual long-turn speaking) and Part 3 (in-depth abstract discussion). High-frequency topics cover education, technology, environment, lifestyles, culture and more. The four official IELTS Speaking marking criteria are Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation. Within the Fluency and Coherence band descriptors, topic expansion is a core evaluation standard, requiring test-takers to deliver multi-angle arguments, supporting details and examples, natural cohesive links, and in-depth exploration of the given topic. For the quantitative coding framework adopted in this research, high-scoring sample responses typically cover 4 to 5 distinct expansion dimensions, while band-5.5 test-takers only address 1 to 2 superficial dimensions and fail to meet the expansion standards reflected in official band descriptors.

3.2 Corpus Comparison Between Band-5.5 and High-Scoring Oral Responses

This study collected high-scoring IELTS Speaking samples (Band 8 and above) from Cambridge IELTS 12–18 and 10 oral transcripts from band-5.5 test-takers, comparing performance across four dimensions. Two reference corpora were referenced for comparative logic: CLEC (Chinese Learner English Corpus), a written learner corpus used to identify universal Chinese EFL lexical and grammatical errors; and LINDSEI, a general L2 learner interview oral corpus providing baseline spontaneous oral production characteristics, rather than IELTS high-scoring data. The four comparison dimensions are as follows:

1) Topic Coverage: Band-5.5 responses focus on a single superficial angle; high-scoring answers cover merits, drawbacks, real cases and suggestions across multiple dimensions.

2) Lexical Use: Band-5.5 test-takers repeatedly employ basic vocabulary lacking mid-tier high-scoring lexis; high-scoring responses feature diverse vocabulary and natural collocations.

3) Sentence Structures: Band-5.5 output relies heavily on simple sentences with monotonous syntax; high-scoring answers flexibly use complex sentences, inversion structures and non-finite verb constructions.

4) Logical Expression: Band-5.5 responses contain disjointed viewpoints with rare cohesive devices; high-scoring answers follow the framework of "claim – sub-argument – transition – conclusion" for coherent logic [5].

3.3 Core Topic Expansion Pain Points of Band-5.5 Test-Takers

Combining corpus comparison and learner interviews, three major pain points are summarized:

1) Narrow Thinking: Learners can only conceive 1–2 basic perspectives for each topic and lack systematic expansion frameworks to extend discussions from applicable scenarios, impacts, comparisons and recommendations.

2) Repetitive Expressions: Over-reliance on basic words such as good and convenient alongside insufficient lexical storage and paraphrasing capacity leads to monotonous delivery.

3) Loose Logic: Viewpoints lack cohesive links with rare logical connectors; arguments lack a central thread, resulting in disjointed ideas and logical gaps that prevent complete elaboration.

4. Construction of LLM-Corpus Integrated Feedback Strategies for IELTS Speaking

4.1 Development of the Specialized IELTS Speaking Corpus

4.1.1 Corpus sources

Corpus data is sourced from high-scoring IELTS Speaking samples in Cambridge IELTS 12–18 and official IELTS high-band responses, forming a self-built specialized IELTS oral corpus independent of LINDSEI. LINDSEI, a

general L2 learner interview oral corpus, was only referenced for designing the data-driven learning logic of this research and does not contain IELTS exam samples. The self-built corpus covers 12 categories of high-frequency IELTS topics, containing 500 passages with a total word count of approximately 80,000.

4.1.2 Corpus annotation items

Annotation dimensions include topic category, expansion dimensions, high-frequency high-scoring vocabulary, core sentence patterns, logical frameworks and common cohesive devices. Mid-tier high-scoring lexis accessible to band-5.5 learners (e.g., flexible, beneficial) and easy-to-master complex structures (e.g., attributive clauses, inversion) are screened, while obscure vocabulary and overly complex grammar are excluded to match learners' proficiency boundaries.

4.2 Selection of Large Language Model

ChatGPT is selected as the core auxiliary tool for the following adaptive advantages:

1) Strong semantic comprehension to accurately identify pain points in oral transcripts.

2) High-quality output capable of generating authentic, tailored expansion ideas and expressions aligned with corpus standards [6].

3) Robust interactivity supporting multi-turn dialogue to adjust optimization suggestions based on learner feedback [7].

4) Efficient real-time feedback satisfying the immediacy requirement of oral training.

4.3 Design of the Multi-Dimensional Feedback System

Aligned with official IELTS Speaking marking criteria and learner pain points, a four-dimensional quantitative feedback system is established with clear indicators and improvement directions:

1) Breadth of Topic Coverage: Count the number of expansion dimensions, compare against the average dimension number observed in high-scoring samples within our self-built IELTS corpus, prompt learners to supplement missing dimensions and provide brainstorming frameworks [5].

2) Lexical Diversity: Calculate lexical repetition rate and the proportion of overused basic vocabulary; recommend paraphrases and high-scoring lexis with annotated collocations.

3) Syntactic Richness: Measure the proportion of simple sentences and count complex sentence occurrences; provide tiered sentence rewriting templates to guide syntactic integration.

4) Logical Coherence: Count the frequency of logical connectors and identify logical gaps; reorganize argumentative threads, supplement cohesive devices and refine logical frameworks.

4.4 Implementation Workflow of Feedback Strategies

The closed-loop feedback workflow follows the sequence of "Input – Matching – Feedback – Optimization":

1) Input: After completing oral practice, learners submit transcribed texts of their recordings.

2) Matching: The LLM identifies the topic category of the transcript and retrieves corresponding reference materials from the specialized IELTS oral corpus [4].

3) Feedback: Deliver quantitative evaluation of output quality based on the four-dimensional system, pinpoint pain points and provide targeted improvement suggestions with sample high-scoring responses.

4) Optimization: Learners revise their oral scripts following feedback and resubmit for secondary model feedback until training targets are achieved [7].

4.5 Application Examples of Feedback Strategies

4.5.1 Feedback on breadth of topic coverage (addressing narrow thinking)

Learner's Response: I think online learning is convenient. We can study at home without going to school. It's good for busy students. But sometimes the internet is bad, and we can't hear the teacher clearly.

LLM-Corpus Feedback: This response only covers two dimensions (convenience and internet issues), below the average of 4–5 expansion dimensions observed in high-scoring samples of our self-built IELTS corpus. Three additional expansion angles are recommended: ① Learning effectiveness: interactivity and knowledge absorption efficiency; ② Target users: remote-area learners and working professionals; ③ Optimization solutions: recorded playback and virtual classrooms. Reference framework: Claim→ Merits→ Drawbacks→ Solutions [5].

4.5.2 Feedback on lexical diversity (addressing repetitive expressions)

Learner's Response: Online learning is good

because it's convenient. We can use many good apps to study. The good thing is we can learn anytime, which is very good for our study.

LLM-Corpus Feedback: The word good is repeated four times, resulting in low lexical diversity. Paraphrasing suggestions: good→ beneficial/advantageous; convenient→ flexible/time-efficient; use apps→utilize educational platforms. Revised sample: Online learning is highly beneficial as it's flexible. We can utilize various educational platforms to study and learn at our own pace.

4.5.3 Feedback on syntactic richness (addressing monotonous sentences)

Learner's Response: Many students like online learning. They can study at home. They don't need to spend time on commuting. They can save money too.

LLM-Corpus Feedback: Four consecutive simple sentences create monotonous syntax. Rewriting suggestions: ①Attributive clause: Many students prefer online learning because they can study at home, which saves time and money on commuting. ② Inversion: Not only can online learning save commuting costs, but it also allows flexible study time [6].

4.5.4 Feedback on logical coherence (addressing disjointed logic)

Learner's Response: Online learning is popular now. Some teachers teach well. Students can ask questions. Sometimes it's hard to focus. The technology is developing fast.

LLM-Corpus Feedback: Dispersed logical nodes without a clear central thread. Optimization suggestions:①Add cohesive markers: Firstly, Furthermore, However, Over;②Restructure the argumentative thread: Popularity→ Advantages (teaching quality+ interaction)→Challenge(concentration difficulties)→Outlook(technological progress). Revised sample: Firstly, online learning is popular. Furthermore, teachers deliver high-quality lessons and students can ask questions easily. However, some students struggle to focus. Overall, developing technology will solve these issues [5].

5. Empirical Research Design and Result Analysis

5.1 Experimental Design

5.1.1 Research subjects

Ten sophomore English majors with a band-5.5 IELTS Speaking score from a university were selected. All subjects possessed balanced linguistic foundations and had no prior specialized IELTS Speaking tutoring. They were randomly divided into an experimental group and a control group, with five learners in each group.

5.1.2 Experimental cycle and variables

1) Cycle: 8 weeks; two high-frequency IELTS topics covered weekly with three oral training sessions per week.

2) Independent Variable: Experimental group received LLM-corpus integrated feedback training [7]; control group followed traditional self-directed exam preparation using Cambridge IELTS textbooks and vocabulary books.

3) Dependent Variable: Oral topic expansion ability, measured by mock test scores and quantitative corpus indicators (number of expansion dimensions, lexical diversity index, complex sentence proportion, frequency of logical connectors) [4].

4) Controlled Variables: Consistent training duration, topic difficulty and unified official IELTS marking criteria to ensure equivalent initial proficiency between the two groups.

5.2 Experimental Procedures

1) Pretest (Week 1): Both groups completed an IELTS Speaking mock test scored by two professional examiners following official standards. Oral transcripts were collected for quantitative analysis of baseline topic expansion ability.

2) Intervention Training (Weeks 2–9): The experimental group followed the LLM-corpus feedback workflow for training with real-time iterative revision [7]; the control group practiced independently without specialized targeted feedback.

3) Posttest (Week 10): Both groups completed a second mock test of identical difficulty. Scoring data and oral transcripts were collected for quantitative post-intervention analysis.

5.3 Experimental Results and Analysis

5.3.1 Mock test scoring results

Pretest results showed no statistically significant difference in average Speaking scores between the experimental and control groups ($P>0.05$), with both groups averaging band 5.5. In the posttest, the experimental group's average score rose to 6.2, while the control group only reached 5.7. The experimental group achieved a

significantly larger score improvement ($P<0.05$), proving that the LLM-corpus auxiliary strategy effectively boosts IELTS Speaking performance and helps learners advance toward band 6.0.

5.3.2 Quantitative corpus indicator results

Posttest transcript analysis revealed that the experimental group saw substantially greater improvements across all indicators compared with the control group:

1) Average number of topic expansion dimensions: Experimental group rose from 1.8 to 4.2; control group from 1.7 to 2.3 [5].

2) Lexical diversity index: Experimental group increased by 35.6%; control group by 8.2%.

3) Proportion of complex sentences: Experimental group rose from 12.3% to 45.7%; control group from 11.8% to 20.5% [6].

4) Frequency of logical connectors per response: Experimental group rose from 2.1 to 7.8; control group from 2.0 to 3.5.

The results demonstrate that the LLM-corpus feedback strategy precisely resolves band-5.5 test-takers' core pain points of narrow thinking, repetitive expressions and disjointed logic, significantly enhancing overall topic expansion capacity and facilitating progress to band 6.0.

6. Conclusions and Future Research Outlook

6.1 Research Conclusions

1) The core topic expansion pain points of band-5.5 IELTS Speaking test-takers include narrow thinking, repetitive lexical output and loose logical organization, manifested as limited topic coverage, low lexical diversity, monotonous sentence structures and insufficient logical cohesion [5]. Within this study's self-built IELTS corpus coding framework, high-scoring responses usually cover 4–5 expansion dimensions, while band-5.5 outputs only involve 1–2 superficial angles.

2) The integrated LLM and corpus feedback system constructed in this study matches the proficiency boundaries of band-5.5 test-takers, and the four-dimensional feedback strategy can accurately target their pain points to deliver personalized, actionable improvement solutions [7].

3) Empirical experimentation confirms that the LLM-corpus auxiliary strategy significantly improves the topic expansion ability of band-5.5 IELTS Speaking test-takers and helps them break through the band-6.0 score bottleneck, outperforming traditional exam preparation methods [4].

6.2 Research Limitations

1) The experimental sample size is limited to 10 English majors, restricting sample representativeness and the generalizability of research findings.

2) The intervention cycle only lasts 8 weeks, so the long-term auxiliary effects remain unvalidated.

3) Feedback generation fully relies on LLMs, which occasionally produce unnatural expressions or minor logical deviations [6].

6.3 Future Research Outlook

1) Expand the experimental sample to include non-English majors and learners with diverse educational backgrounds, and extend the intervention cycle to verify the long-term effectiveness and general applicability of the strategy [3].

2) Optimize the self-built IELTS oral corpus by adding more transitional band-5.5 to 6.0 oral transcripts to improve feedback precision [1].

3) Integrate speech recognition technology to develop an all-in-one oral training platform integrating pronunciation correction, topic expansion guidance and real-time feedback [7].

4) Extend research to band-6.0 to 7.0 high-scoring IELTS Speaking candidates, develop specialized stratified training strategies for different score bands, and form a tiered training system built on existing corpus and LLM research outcomes [5].

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