

# Corpus-driven: Research on the Construction of Interdisciplinary Teaching Model of Academic English Writing

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**Abstract:** *Interdisciplinary integration has become the core orientation for high-quality development in higher education. As a critical medium for interdisciplinary knowledge exchange, the teaching quality of academic English writing directly impacts the systematic cultivation of students' academic expression abilities and the practical effectiveness of interdisciplinary collaboration. The corpus-driven teaching model, centered on authentic language materials and empowered by technological collaboration mechanisms, provides innovative solutions to address real-world challenges in teaching interdisciplinary academic English writing, such as disciplinary barriers and language standard discrepancies. Guided by the ecological development orientation of interdisciplinary academic English writing instruction, this approach clarifies the deep interaction between disciplinary culture and language learning. It establishes a new teaching paradigm featuring collaborative linkage between disciplinary and language teachers, with dynamic corpora and intelligent tools providing deep empowerment. By exploring the co-construction and sharing mechanisms of this model and cross-contextual transfer pathways, it offers solid theoretical support and practical guidance for enhancing the quality of interdisciplinary academic English writing instruction in higher education.*

**Keywords:** *corpus-driven; interdisciplinary academic English writing; ecological teaching; collaborative mechanism*

## 1. Introduction

The interdisciplinary development of higher education transcends traditional disciplinary boundaries, reshaping the complex and integrated landscape of knowledge production. As a crucial bridge connecting different academic systems, academic English writing requires learners to master standardized language expression while deeply understanding each discipline's unique academic culture, logical thinking patterns, and communication paradigms. Current teaching of interdisciplinary academic English writing faces core challenges: discrepancies in disciplinary language norms, divergent cognitive models, and fragmented teaching resources. These issues create a disconnect between language instruction and practical disciplinary needs, hindering students' development of effective writing skills for interdisciplinary communication. The maturation of corpus technology provides a critical solution. Its massive real-world language data accurately captures academic discourse characteristics, lexical patterns, and sentence structure usage across disciplines, offering objective and reliable references for teaching. Corpus-driven pedagogy is not merely technical application but a systematic innovation that integrates teaching subjects, resources, and methods around authentic language materials. By extracting teaching content from real-world data and fostering students' language perception and application abilities through interactive inquiry-based learning, this approach precisely meets the diverse and targeted demands of interdisciplinary education. It provides valuable insights for enhancing teaching quality and supporting students' development of interdisciplinary academic literacy.

## 2. Ecological Demands of Interdisciplinary Academic English Writing Teaching

The essence of teaching interdisciplinary academic English writing lies in building a dynamic system for language learning and knowledge exchange within a multidisciplinary context. For this system to function effectively, it must not only align with the deep connections between disciplinary culture, linguistic norms, and cognitive approaches, but also support the steady development of an

ecological learning environment. Ultimately, this synergy enhances both language proficiency and core disciplinary competencies, making interdisciplinary knowledge transfer more precise and impactful.

### ***2.1. The Interweaving of Subject Culture, Language Norms and Cognitive Modes***

Through prolonged development, each discipline has cultivated distinctive academic traditions with unique emphases. These traditions are not only embedded in the logical frameworks of knowledge systems but also deeply permeate the linguistic norms and cognitive paradigms of scholarly expression. In humanities and social sciences, academic writing emphasizes the depth of critical thinking and expressive dynamism, seamlessly integrating interpretation, analysis, and argumentation. The vocabulary selection balances professional precision with humanistic depth. Conversely, natural sciences prioritize precision, objectivity, and logical rigor in expression, featuring well-structured sentence patterns, highly standardized terminology, and data presentation and logical reasoning as the core pillars of writing. These interdisciplinary differences in expression are not barriers but rather lay the foundation for diverse coexistence in cross-disciplinary communication<sup>[1]</sup>.

Interdisciplinary writing requires learners to break free from the linguistic inertia of a single discipline, deeply understand, and actively adapt to the expression paradigms of different disciplines. This process involves not only the dynamic transfer of language skills but also the active reconstruction of cognitive patterns and the profound integration of academic cultures. Learners must establish effective connections between the cognitive frameworks of different disciplines, capturing both the common patterns of language expression and precisely identifying its specific characteristics to achieve flexible adaptation in language use. The diverse interweaving of disciplinary cultures, linguistic norms, and cognitive approaches determines that teaching interdisciplinary academic English writing cannot be confined to a single, standardized teaching paradigm. It must respect disciplinary differences and construct a teaching system that accommodates diverse expressions, thereby providing strong support for interdisciplinary communication.

### ***2.2. The Practical Needs of Building a Supportive Language Learning Ecosystem***

Traditional English writing instruction in academia has long prioritized systematic training in general language skills while neglecting the specific contextual demands of disciplinary discourse. This imbalance between pedagogical content and students' actual needs for interdisciplinary writing has resulted in frequent challenges: inaccurate lexical coordination, sentence structures that violate disciplinary pragmatics, and academic logic that diverges from disciplinary paradigms, all hindering precise expression of scholarly ideas. The root cause lies in the absence of a mature language learning ecosystem. Teaching resources fail to comprehensively address the linguistic characteristics of different disciplines, disciplinary-linguistic collaboration mechanisms remain underdeveloped, and learning feedback often misses disciplinary-specific language pain points, ultimately undermining teaching effectiveness<sup>[2]</sup>.

The core of building a supportive language learning ecosystem lies in achieving deep integration between language instruction and disciplinary needs. Systematic corpus development serves as the foundation, requiring precise mapping of academic English characteristics across disciplines to provide students with authentic language models. Deepening cross-disciplinary teaching collaboration is crucial, necessitating the breakdown of barriers between academic fields and language education to consolidate teaching synergy. Technology-enabled personalized guidance acts as the backbone, dynamically adapting learning paths to help students accurately identify weak areas and achieve targeted improvement. This ecosystem not only addresses the practical demands of interdisciplinary academic English writing instruction but also provides a core solution for systematically enhancing teaching effectiveness, serving as a vital bridge between language proficiency development and disciplinary literacy growth.

## **3. The Co-construction Mechanism of Corpus-driven Teaching Mode**

The corpus-driven interdisciplinary academic English writing pedagogy model centers on collaborative synergy. By leveraging deep collaboration among teaching stakeholders and technology's precise empowerment of educational resources, it establishes a multidimensional, dynamic teaching system. This framework inherently respects human agency while harnessing technological and resource support. Through organic integration of elements, it synergizes all teaching components to achieve

deep integration of instructional components and ensure system efficiency. It not only fulfills the core objectives of academic writing instruction but also demonstrates the practical value of interdisciplinary integration, enabling the teaching system to unleash sustained educational efficacy through collaborative symbiosis.

### ***3.1. Cooperative Teaching Paradigm of Subject Teachers and Language Teachers***

The dual nature of interdisciplinarity and linguistic specificity in academic English writing forms the core logical foundation for instructional implementation, necessitating deep collaboration between subject teachers and language instructors. Subject teachers, with their systematic grasp of disciplinary knowledge systems, profound understanding of academic paradigms, and proficient application of research methodologies, can establish clear disciplinary orientation for writing instruction, clarifying discourse structures, logical frameworks, and expressive priorities across different academic texts. Their core value lies in guiding students to comprehend discipline-specific argumentation paradigms, standardized terminology usage, and implicit norms of academic communication, helping them construct disciplinary-specific academic discourse systems that ensure professional relevance and appropriateness in writing content. Language instructors, focusing on the intrinsic principles and practical approaches of language teaching, provide multidimensional support for enhancing students' linguistic accuracy, standardization, and fluency—from precise vocabulary selection and flexible sentence construction to logical discourse organization. Leveraging empirical analysis results from corpora, they distill language representation characteristics across disciplines and design targeted language training modules, guiding students to perceive and internalize the expressive logic and application techniques of disciplinary English [3].

The essence of collaborative teaching lies not in simplistic role division, but in establishing a symbiotic mechanism centered on educational objectives. Subject teachers and language instructors jointly participate in precisely defining teaching goals, systematically constructing curricula, and scientifically evaluating outcomes. Through regular communication, consultation, and deep collaboration, they achieve organic integration of disciplinary needs and language training. This pedagogical paradigm completely dismantles the traditional barriers between subject-specific instruction and language education, ensuring content that not only aligns with disciplinary cognitive patterns but also demonstrates systematic and hierarchical language training. This dual-empowerment model not only bridges disciplinary knowledge with language proficiency, but also helps students gradually develop academic writing competencies in interdisciplinary contexts, providing solid support for the long-term development of their academic expression abilities [4].

### ***3.2. Personalized Learning Path Supported by Dynamic Corpus and Intelligent Tools***

Dynamic corpora serve as the cornerstone of corpus-driven teaching, with their core strength lying in real-time updates that distinguish them from static corpora. These systems continuously incorporate cutting-edge academic literature, research reports, and conference papers across disciplines, ensuring linguistic features remain synchronized with disciplinary advancements through dynamic corpus expansion. The construction of such corpora requires precise balancing between universality and specificity: the universal aspect covers standardized academic English expressions applicable in interdisciplinary communication, while the specific aspect focuses on domain-specific linguistic characteristics of different disciplines, systematically categorizing and aggregating discipline-specific corpus resources. Through systematic corpus annotation, classification, and indexing optimization, students can efficiently explore lexical collocation patterns, sentence structure paradigms, and discourse organization logic within specific disciplines. This enables them to develop a systematic and intuitive understanding of subject-specific English, thereby laying a solid foundation for future academic expression [5].

The integration of intelligent tools not only expands the application boundaries of corpora but also provides robust technical support for precise construction of personalized learning paths. Natural language processing technology enables automated in-depth analysis of students' written compositions, accurately identifying core issues such as grammatical errors, inappropriate word combinations, and monotonous sentence structures. By leveraging corpus resources, it offers targeted revision suggestions and expression references. Learning analytics tools comprehensively track students' learning trajectories, systematically analyze their weaknesses in language knowledge internalization and flexible corpus application, generate customized learning reports, and match students with suitable corpus resources and tiered training tasks. The deep synergy between these tools drives the transformation of

learning models from passive reception to active exploration: students can independently retrieve materials and conduct targeted training based on their needs, while teachers implement precise instructional interventions through technical feedback, effectively achieving the core teaching objective of "teaching according to individual aptitude." This personalized approach fully respects individual differences among students, enhances learning precision and efficiency, optimizes the relevance of teaching implementation, maximizes the value of corpus resources, and achieves mutual empowerment between teaching and learning.

#### **4. Exploration of Sustainable Development Path of Teaching Mode**

The corpus-driven interdisciplinary academic English writing pedagogy is fundamentally rooted in its inherent sustainability. To realize this vision, an open resource-sharing mechanism must be established to dismantle institutional barriers, foster multi-stakeholder collaboration, and enable the model to precisely address the diverse needs of higher education. The core value of this mechanism lies in providing dynamic support for the model's evolution, allowing it to continuously adapt and refine across educational contexts while maintaining alignment with teaching practices and staying at the forefront of innovation.

##### ***4.1. Co-construction and Sharing Mechanism of Open Corpus Platform***

The richness and timeliness of corpora are key factors ensuring the efficient operation of teaching models. Individual universities or institutions, constrained by limited resources and disciplinary coverage, struggle to independently undertake the construction and long-term maintenance of large-scale interdisciplinary corpora. The collaborative sharing mechanism of open corpus platforms effectively addresses this limitation: By integrating resource advantages from different universities and disciplines, it enables large-scale accumulation and efficient utilization of linguistic data. Under this framework, participating institutions can contribute specialized corpus resources tailored to their disciplinary characteristics and teaching needs, while actively engaging in annotation, review, and dynamic updates. Furthermore, establishing unified standards for corpus collection, annotation norms, and sharing protocols fundamentally ensures resource quality and cross-platform compatibility, effectively avoiding redundant construction and resource waste<sup>[6]</sup>.

The value of open sharing mechanisms extends beyond corpus resources to encompass cross-organizational exchanges of teaching expertise, instructional designs, and research outcomes. Participating institutions can leverage the platform to systematically share corpus-based teaching plans, curriculum frameworks, and pedagogical evaluation data. Through inter-university teaching seminars and collaborative research, they collectively explore pathways to optimize teaching methodologies. This approach not only significantly reduces individual institutions' resource development costs but also continuously expands the corpus' disciplinary coverage and enhances its practical value. By providing sustained resource support and theoretical nourishment for teaching models, it ultimately establishes a solid foundation for their long-term and stable development.

##### ***4.2. Transferability of Teaching Model in Different Higher Education Contexts***

China's higher education system has developed a diversified and differentiated landscape, with distinct variations in institutional positioning, disciplinary offerings, and student demographics across different types of universities. Research universities, where students frequently engage in interdisciplinary research collaborations and in-depth academic exchanges, require higher professionalism and depth in academic English writing. Applied universities prioritize cultivating students' interdisciplinary communication skills for professional contexts, necessitating a balanced approach between academic rigor and practical value in writing instruction. Local universities, with their more concentrated disciplinary focus, guide students' interdisciplinary learning within specific fields, resulting in writing demands that are distinctly industry-oriented. The sustainable development of corpus-driven teaching models hinges on strong transfer adaptability. This transfer is not merely about simple replication but rather involves scenario-specific, personalized adaptation under the premise of stable core mechanisms<sup>[7]</sup>.

To address the distinct developmental characteristics of different universities, the corpus-based teaching model can be optimized through differentiated approaches. Research-intensive universities should prioritize research orientation by increasing the proportion of cutting-edge academic literature,

with a focus on cultivating students' ability to express academic innovation. Applied universities can expand coverage of professional scenarios by incorporating practical texts such as industry reports and technical documents, emphasizing practical application. Local universities may establish specialized sub-corpus databases centered around regional disciplinary strengths, ensuring teaching content aligns precisely with regional industrial needs. Such contextual adjustments enable the model to better accommodate the diverse developmental requirements of universities, broaden its application dimensions and practical value, promote sustainable implementation, and achieve an organic integration of academic rigor and practical utility [8].

## 5. Conclusions

The ecological evolution of interdisciplinary academic English writing instruction urgently requires systematic restructuring of teaching models. The corpus-driven approach, grounded in authentic language materials, establishes a pedagogical framework that balances disciplinary specificity with linguistic coherence. This model leverages collaborative efforts between subject teachers and language specialists, while harnessing dynamic corpora and AI-powered tools to address practical bottlenecks in cross-disciplinary writing education. It not only acknowledges differences in academic cultures and linguistic norms across disciplines but also tailors learning pathways to individual student needs, embodying a student-centered philosophy. The open corpus platform's collaborative sharing mechanism and cross-context transfer capabilities lay the foundation for sustainable development. The deep integration of corpus analysis and AI technologies will drive breakthroughs in data accuracy and interactive teaching effectiveness. The refinement of this model not only provides practical support for enhancing academic English teaching quality in higher education but also injects lasting momentum into cultivating interdisciplinary talents and advancing the connotative development of higher education.

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