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Feasibility and Pathways of Using AI Knowledge Graphs to Innovate Postgraduate English Terminology Teaching in Literary Theory

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Abstract: The teaching of English terminology in literary theory to graduate students often struggles with conceptual fragmentation, poorly established connections between terms, and ineffective application in academic practice. To tackle these issues, this paper first diagnoses the specific pedagogical challenges through a systematic review of relevant literature and semi-structured interviews with teachers and students. Building on this diagnosis, it then proposes and theoretically justifies the integration of AI knowledge graphs as a solution. The justification is structured around three core aspects: how knowledge graphs can enhance structured knowledge representation, align with graduate students' cognitive patterns for understanding abstract concepts, and be embedded into the full spectrum of teaching contexts . Findings indicate that AI knowledge graphs can effectively mitigate terminology fragmentation via structured representation, support the comprehension of abstract concepts through visual relational mapping, and enable dynamic, personalized engagement across all phases of learning. By establishing this three-pronged feasibility and a Learning-Research-Application dynamic teaching model for terminology literacy, the research contributes a foundational theoretical rationale and a viable implementation pathway for harnessing AI knowledge graphs in humanities terminology education. The proposed approach serves as a transferable model for enhancing discipline-specific English pedagogy across related fields.

Keywords: AI Knowledge Graph, Postgraduate Education, Literary Theory, English Terminology, Feasibility.

1. Introduction

Proficiency in the English terminology of literary theory is vital for graduate students who major in literature, which enables both their critical academic reading and the writing of English scholarly papers. It also forms a foundational framework for them to understand the Western literary-theoretical discourse system. However, the extensive range of literary theory entails a multitude of specialized concepts. These terms, emerging from diverse historical and cultural contexts in both Eastern and Western traditions, are often interconnected yet distinct, leaving students easily confused and struggling to achieve a deep comprehension [1].

At present, the teaching of English terms of literary theory for graduate students in China is facing several persistent challenges. Literary theory terms is characterized by hierarchical nesting and semantic crossover. The traditional teaching mode often isolates terms, presenting only their definitions and Chinese equivalents without linking them to their theoretical origins or related concepts. This approach hinders students' ability to construct a systematic terminological framework. Instruction frequently fails to adequately connect terminology with textual analysis and literature reading. Consequently, students may grasp a term's meaning in isolation but remain unable to employ it accurately in their own writing, creating a disconnect between terminology learning and academic practice [2]. The prevalent "one-size-fits-all" teaching model struggles to accommodate the diverse needs and prior knowledge levels of individual students.

The knowledge graph, a large-scale semantic network, offers a potential solution to the teaching challenges above. The knowledge graph is a structured knowledge base composed of entities, their attributes, and the multifaceted relationships between them [3]. An educational knowledge graph applies this structure to organize educational content. By statistically integrating scattered and fragmented resources and linking them within a vast semantic network, it provides robust knowledge support for intelligent educational applications.

With the deepening integration of AI in education, knowledge graphs have demonstrated significant advantages as "visual carriers of structured knowledge" in teaching complex concepts within fields like medicine and computer science. Nevertheless, their applicability and efficacy in the humanities-specifically in English literary theory terminology teaching -have not been systematically examined. This study seeks to address this gap.

2. Literature Review

2.1. Domestic Research: Focus on Terminology Teaching Optimization and the "Disciplinary Gap" in Technology Application

Domestic research on literary theory terms can be categorized into two strands. The first is to focus on terminology translation and standardization. For instance, Zhu Anbo discusses the translation strategies for western literary terms, advocating that "terminology translation should balance academic accuracy with cultural adaptability"[4]. Similarly, Wu Chunping and Zhang Jun examine misuse of professional terms in literary theory textbooks, noting how unscientific terminology hinder the teaching and dissemination of literary theory knowledge[5].

The second strand is to focus on the improvement of teaching methods for terminology. Gao Shuni introduces a "case- teaching method" into terminology instruction, arguing

that case studies deepen students' understanding of both terminology and literary theory[6]. Lai Liangtao explores the cognitive semantic density of literary theory discourse and its implications for teaching[7]. Although these research addresses specific teaching details, they largely overlooks the application of technological tools, thus struggling to overcome the limitations of "fragmented" instructional delivery.

Meanwhile, domestic research on "AI knowledge graphs application in education" reveals a pattern of "stem-led development, with humanities lagging behind". In the scientific field, scholars like Yang Jing et al. demonstrate that the structured presentation of medical terminology via knowledge graphs significantly enhances learning efficiency[8]. In foreign language teaching, researchers like Zhang Suxia explores the research framework, evolution and frontier comparison of blending college English teaching with scientific knowledge graphs[9].In the existing research, the application of knowledge graphs is confined to scientific terms with obvious quantitative attributes or to general vocabulary instruction. Its application has not yet extended to the unstructured, conceptual terminology of humanities subjects like literary theory. This creates a gap where technology is out of sync with the actual teaching needs of the liberal arts.

2.2. International Research : Advances and Localization Limits

The research abroad on " educational application of knowledge graphs" began earlier, and has been extended to the field of humanities and social sciences. For example, Baepler P. and Murdoch C. J. used data analysis to reveal the correlations between students' learning behavior, knowledge structures and academic performance[10]. In philosophy education, Bertens employed visual tools to help students grasp the understand complex and abstract philosophical concepts and their interrelations[11]. Such studies not only verify the efficacy of knowledge graphs in teaching conceptual subjects in humanities and social sciences[12], but also highlights their technological strengths in organizing semantic units and reinforcing knowledge associations[13].

However, this body of research exhibits two primary limitations regarding its applicability to the Chinese context. First, the subjects are predominantly native English-speaking graduate students. While some studies address technology-enhanced language learning, the significant gap between a native English background and the second-language acquisition needs of Chinese graduate students means these findings cannot be directly adapted to the domestic teaching environment. Second, there is a lack of specialized analysis addressing the unique characteristics of literary theory terminology-such as the strong interplay between different theoretical schools and the semantic shifts terms undergo across contexts-resulting in insufficient research depth on this front.

On the whole, the deep integration of "AI knowledge graphs" with "English literary theory terminology teaching for postgraduates" has not yet been achieved in existing literature. Domestic research often lacks a "technology-enabled" perspective for humanities terminology teaching, while international studies seldom include a "localization adaptability" analysis. To bridge this gap, this paper employs empirical research to clarify the specific needs of literary theory terminology teaching in China. It then systematically demonstrates the adaptability of AI knowledge graphs across three dimensions-knowledge representation, cognitive patterns, and teaching scenarios-thereby providing a theoretical framework to guide the future integration of this technology with pedagogical practice.

3. Research Design and Data Sources

To accurately identify teaching challenges in English literary theory terminology teaching for postgraduates and assess the adaptability of the proposed solution, this study adopts a mixed-methods approach by combining literature analysis with semi-structured interviews. This design ensures the objectivity and relevance of the research findings.

3.1. Participants

To ensure representativeness, participants included both instructors and students from diverse institutional contexts. The instructor sample comprised six literary theory teachers from three types of universities: a "Double First-Class" institution, a provincial key university, and a regular undergraduate university. All the teachers had 10–15 years of teaching experience and were responsible for teaching English terminology in graduate courses such as Western Literary Theory and Literary Theory Special Topics.

The student sample consisted of 87 graduate students from the same universities. Their majors included Comparative Literature & World Literature, Literary Studies, and Modern & Contemporary Foreign Literature (all of which require literary theory courses). Among them, 31 students (35.6%) had interdisciplinary backgrounds, resulting in significant variation in their English proficiency levels

3.2. Research Instruments

Separate semi-structured interview protocols were designed for instructors and students. The instructor protocol focused on teaching objectives, pedagogical challenges, and openness to technological integration, featuring questions such as: "What is the greatest difficulty you face in teaching English terms in literary theory ?"and "Do you believe technological tools could address these challenges?"

The student protocol focused on learning challenges, needs, and technology acceptance, with questions including: "What are your main difficulties in mastering English literary theory terms?" and "In what ways would you like to improve the efficiency of your terminology learning?"

3.3. Data Processing

All interviews were conducted as one-on-one, in-depth sessions, audio-recorded, and transcribed verbatim, resulting in a text of about 40,000 words. The transcriptions were analyzed by using NVivo 12 software. The analysis followed a coding process: initial concepts such as "difficulty linking terms," "weak application skills" were first identified through open coding. These were then categorized into broader themes-such as cognitive challenges, application challenges, and pedagogical challenges-through axial coding.

4. Feasibility Analysis : Applying AI Knowledge Graphs to Terminology Teaching

Grounded in the teaching challenges revealed by the interview data, this paper analyzes how the core features of AI knowledge graphs can address these issues. We argue for

their suitability in teaching English literary theory terminology to postgraduates, focusing on three areas: knowledge representation, cognitive processes, and teaching scenarios.

4.1. Structured Knowledge Representation for Terminology Integration

According to the interview data, 85.7% of the teachers identify presenting the relationships between terms as a core teaching challenge, while 78.2% of students report difficulty in systematically organizing the terminology framework. This pain point stems from a fundamental disconnect between the teaching and the literary theory terms: the nonlinear, associative nature of literary theory terminology conflicts with the linear traditional instruction which features explaining terms in chronological or alphabetical order, failing to directly reveal critical conceptual relationships among the terms, such as the opposition between romanticism and realism.

The "structured knowledge representation" of AI knowledge graph provides technological support for solving this problem. The AI knowledge graphs transforms scattered terms into a "systematic network" through the ternary model of "node-relationship-attribute"(as shown in table1): the "node" part defines the core information of terms, and each term node contains attributes such as "English name, Chinese translation, core definition (in Chinese and English), proposer, theoretical origin", such as the "deconstruction" node marked "Presenter: Jacques" The "relationship" part presents the term association, and nodes are connected by different types of edges (such as "derivative relationship", "opposition relationship"and "cross relationship"), such as "structuralism → post-structuralism" connected by "derivative relationship" and "Romanticism → classicism" connected by "opposition relationship"; In the "hierarchy" part, the terminology system is sorted out, and the hierarchy structure is constructed according to "theoretical genre (first-level node) → core term (second-level node) → derivative term (third-level node)", such as "postmodernism" as the first-level node, and it has two-level nodes such as "deconstruction", "intertextuality" and "Gaze" under its jurisdiction.

Table 1. Table of Entities & Attributes

Node (Term)	Key Proponent(s)	Core Concept	Attributes (Example)
Structuralism	F. de Saussure	Meaning arises from structures & systems within a text or culture.	Era: Early 20th cent.; Focus: Language, myth, binary oppositions.
Post-structuralism	J. Derrida, M. Foucault	Critiques & deconstructs the stable structures posited by structuralism.	Era: Mid-Late 20th cent.; Key Method: Deconstruction.
Deconstruction	J. Derrida	Reveals internal contradictions & instability of meaning in texts.	A key method of post-structuralism.
Intertextuality	J. Kristeva	Texts are shaped by and reference other texts; no text is isolated.	Related to: Deconstruction, Postmodernism.
Formalism	V. Shklovsky	Focus on the form, structure, and literary devices of the text itself.	School: Russian Formalism; Central: *Defamiliarization*.
New Criticism	W.K. Wimsatt, M.C. Beardsley	Close reading of the text as a self-contained aesthetic object.	School: Anglo-American; Central: *Intentional Fallacy*.
Romanticism	W. Wordsworth, S.T. Coleridge	Emphasizes emotion, imagination, individualism, and nature.	Era: Late 18th-19th cent.; Reaction: Against Classicism.
Classicism	A. Pope, J. Dryden	Emphasizes order, reason, harmony, and adherence to traditional forms.	Era: 17th-18th cent.; Values: Imitation of classical models.
Postmodernism	J.-F. Lyotard, F. Jameson	Skepticism towards grand narratives, irony, pastiche, blurring boundaries.	Era: Late 20th cent.; Relation: Shares themes with post-structuralism.

This representation of AI knowledge graphs adapts to the "systematic demand" of English terms in literary theory: on the one hand, it breaks the limitation of "linear explanation" and enables graduate students to intuitively see the "network connection" between terms; On the other hand, the academic context of terms is provided by "attribute labeling" to avoid "isolated cognition". In an interview, a teacher said: "If the terminology can be mapped, students can see at a glance what terms are included in' post-structuralism' and where they come from, which is more effective than my repeated explanation."

4.2. Visual Association for Cognitive Engagement

The abstract nature of English literary theory terms presents another major hurdle for students' learning , a point emphasized by 64.4% of students who find terms "abstract and difficult to understand." Terms such "postmodernism"

and "heteroglossia," which lack concrete referents and require theoretical context for comprehension, are particularly challenging. This difficulty is exacerbated by a key cognitive trait among graduate students: while they possess strong analytical ability, their understanding of abstract concepts often still requires "figurative support." Traditional teaching methods relying on "pure textual explanation" struggle to meet this cognitive need.

The "visual association" capability of AI knowledge graph can align with graduate students' cognitive process for mastering abstract terms. It can reduce their cognitive load by transforming abstract concepts into concrete associations through graphical representation of dynamic association display and contextual annotation. First, the "dynamic association demonstration" of AI knowledge graphs supports graduate students to click a term node and automatically display its "association node" and "association type".For example, when they click "intertextuality", It can display its connection with "structuralism" and "palimpsest", and intuitively understand the "multi-dimensional association" of terms. The second is "contextual annotation", in which "typical text cases" are added next to the terminology nodes, such as "stream of consciousness" nodes marked with "typical texts: Ulysses, The Sound and the Fury", and text fragments are linked too, so that abstract terms can be combined with specific texts, which is in line with graduate students' "from text to theory".

Student's interview feedback corroborates this approach. One student noted, "I still didn't understand 'narrative focalization' after many explanations. It would be much easier if I could see its connection to a text case like Jane Eyre and how it differs from 'narrative perspective.'" This comment confirms the strong fit between the knowledge graph's visual integration of "concept-association-example" and graduate students' cognitive patterns, providing the concrete scaffold needed for speculative engagement with abstract terms.

4.3. Dynamic Interaction for Comprehensive Teaching Scenario coverage

The oversimplification of traditional terminology teaching stems from the inability of teaching tools to support diverse instructional scenarios. Before class, the lack of guiding tools forces students into rote memorization from glossaries without clear learning objectives. During class, the absence of interactive tools hinders teachers' ability to address terminology-related questions in real time. After class, the shortage of personalized tools prevents targeted reinforcement of individual student weaknesses.

The dynamic interaction capability of AI knowledge graphs can address this gap by supporting the the whole teaching process. For the p**re-class guidance,** teachers can assign a lightweight knowledge map highlighting core terms and their foundational links along with specific preview tasks, such as exploring the relationship between Formalism and New Criticism. This guides students to independently navigate the terminology framework and identify key learning points. For in-class explanation, teachers can move beyond static, linear PowerPoint presentations, and use an interactive knowledge atlas to dynamically expand or collapse term associations in response to student queries. For instance, if a student asks about "the relationship between deconstruction and feminism,"teacher can instantly add and visualize this crossover link. This kind of teaching flexibility enhances classroom interaction and mitigates the issue of passive student listening. For the post-class consolidation, the AI system can transcend one-size-fits-all tests, and generate personalized exercises based on individual student data such as preview behavior and in-class interactions. It pushes tailored activities such as term-relationship matching or text-analysis questions focusing on weak areas , thereby achieving differentiated instruction. Interview data strongly supports this integrated approach. All six teachers agreed that"tools supporting the entire teaching process can significantly improve efficiency." One professor from a provincial key university elaborated: "If students can use the knowledge graphs for targeted post-class practice, it would be far more effective-and engaging-than my simply assigning term memorization." This feedback confirms that the AI knowledge graph's dynamic interaction effectively meets the demands of varied teaching scenarios, thereby breaking the limitations of the traditional oversimplified mode.

5. Construction of the Three-dimensional Mode of "Learning-Research-Application" for Terminology Teaching Based on AI Knowledge Graphs

On the basis of fully demonstrating the feasibility, this paper constructs a fusion training model with AI knowledge graph as the technical center, connecting the three dimensions of "theoretical learning", "research practice" and "application output" (as shown in table 2). This model promotes the knowledge graph from a static teaching resource to a dynamic ecosystem that drives the development of students' English terminology ability.

Table 2. Learning-Research-Application Dynamic Training Model for Terminology Literacy

Phase	Component	Key Activities	Outcomes
Phase 1 Theoretical Learning	Intelligent Course Modules	Interactive terminology learning Conceptual mapping exercises Theoretical foundation building	Mastery of core terminology Understanding of conceptual relationships
Phase 2 Research Practice	Knowledge Graph Construction Project	Term extraction & entity definition Relationship modeling Graph structure design & implementation	Hands-on technical skills Collaborative research experience Partial KG completion
CORE Technical Framework	AI Terminology Knowledge Graph	Central repository of structured knowledge Dynamic updating mechanism API for system integration	Unified knowledge representation Scalable terminology ecosystem Foundation for applications
Phase 3 Applied Output	Virtual-Real Practice Platform	Simulation exercises Real-world case analysis Project-based learning applications	Practical problem-solving skills Portfolio of completed projects Industry-ready competencies
Continuous Improvement	Feedback Loop	Performance assessment KG refinement based on usage Curriculum adjustment	Model optimization Adaptive learning pathways Sustained relevance

5.1. "Learning" Stage: Building an Intelligent Curriculum Module Supported by Knowledge Graph

In postgraduate academic English or professional English courses, the teaching module of "Subject Core English Terminology and Academic Atlas" is set up. The teaching resources of this module are based on dynamic knowledge graphs, not fixed textbooks. Teaching activities include: "terminology network exploration": teachers provide a map of subject English terms, and students learn the related clusters, historical evolution and school differences of core terms under the guidance of teachers through operating the map. (2) Situational case study: Teachers associate the map nodes with classic literature fragments, examples of terminology use in top journal papers and videos of international conference speeches, so as to make terminology "live" in the real academic context. (3) Comparative analysis task: Teachers guide students to cooperate in groups, analyze the semantic changes of the same term in different theoretical frameworks by using the comparative function of atlas, and cultivate critical academic thinking.

The setting of this teaching module makes the teaching of English terms in literary theory for graduate students move from "static teaching" to "dynamic construction". Students no longer passively memorize isolated terms, but actively become explorers and meaning builders of subject English terminology network. In order to ensure the learning effect, teachers can use the process map learning file as a process evaluation tool to record students' thinking trajectory and iterative process in term association discovery, contextual use case analysis . In this teaching module, the teacher's role has changed from imparting knowledge to map navigator and academic dialogue designer, who is responsible for guiding students to locate key concepts, identify academic disputes and form their own terminology understanding diagrams in the complex semantic network. Through this module, graduate students can not only master the core terms of literary theory, but also acquire the metacognitive ability of structured learning and critical thinking in a huge knowledge system, laying a solid cognitive and linguistic foundation for the follow-up research and practice.

5.2. "Research"Stage : to Carry Out a Construction-oriented Collaborative Research Project on English Terminology Graphs

Turning English terminology learning into research practice, teachers can guide students to organize interdisciplinary student teams (such as computer science+humanities and social sciences) and carry out the project of "building a knowledge map of micro-domain terms": extracting and cleaning domain terms from learning, and extracting term candidates from professional documents by using natural language processing technology. The definition and annotation of English terminology relations, based on discipline logic, define semantic relations such as hyponymy, antonym, applied to and derived from, and annotate them manually or semi-automatically. Finally, the graph database is used for storage and visualization, and the educational utility of the graph is evaluated through expert review and user test.

The project practice aims to improve students' information literacy, collaborative research ability and meta-cognition of terms knowledge structure. Project practice can help students from "learning to use atlas" to "constructing and creating atlas" and realize deep cognitive participation of "learning through construction". The real and complicated problems faced by students in the project, such as how to define the vague academic concept relationship and how to balance the validity of calculation extraction and manual labeling, force them to go beyond passive acceptance and take the initiative to make academic decisions and model knowledge. This process not only honed their technical ability of information

processing and teamwork, but also cultivated their meta-cognition of literary theory: students must systematically examine English academic terms, discourse conventions and logical structure in this field, so as to gain an insight of "overlooking" literary theory. The final "knowledge map of micro-domain terms" is not a one-time assignment, but an iterative and shareable academic public product, which can provide structured cognitive tools for subsequent learners and even provide basic knowledge for academic research in related fields. Thus, English terminology learning is organically integrated with students' research practice, personal growth and community knowledge accumulation.

5.3. "Use" Stage: Build a Platform for the Application and Practice of English Terms

Teachers can forge partnerships with campus entities such as the library, graduate school, international office to establish a supportive ecosystem for mastering English terminology. The first thing is to build an AI-assisted academic writing auxiliary platform, and embed the English terminology graphs in literature theory into the paper writing system, and provide terminology recommendation, usage verification and collocation suggestions for students when writing English papers. The second is to develop a virtual international academic conference simulator system, in which students need to use the knowledge of English terms prepared by the atlas to present papers, ask questions and participate in debates. The system can provide real-time feedback on the accuracy and appropriateness of terminology use.

The third initiative is to provide students with practical experience by involving them in real academic communication tasks. Through partnerships with the university's English-language journals, discipline-specific international outreach platforms, or international conference organizers, students can participate in tasks such as translating abstracts or writing academic press releases. The AI knowledge graph ensures the professionalism and consistency of terminology used in these tasks, enabling practical application and evaluation of the terminology learning. Furthermore, this dynamic terminology system links learning materials such as the latest research or conference videos with original academic contexts, shortening the delay in students mastering frontier terminology and equipping them for timely international academic exchange.

6. Conclusion

This study pinpoints key issues in graduate-level English literary theory terminology teaching:fragmented knowledge, disconnection from practice, teaching oversimplification,and demonstrates how AI knowledge graphs can effectively address them through structured representation to connect fragmented terms, visual association to support abstract cognition, and dynamic interaction to cover all teaching scenarios, thus supplies a theoretical basis for using AI to teach humanities terminology and offers practical guidance for educators.

Future research can advance this work in two key directions: practical implementation and theoretical expansion. Create a functional literary theory terminology knowledge graph and validate its efficacy via classroom trials. Apply the framework to other humanities fields to develop more AI-enhanced pathways for professional English acquisition.

References

[1] Liang Jianping. A study on the difficulties and countermeasures in the teaching of literary theory from an aesthetic perspective [J]. China National Expo, 2021(05): 87-89.

[2] Yu Jing. Research on the cultivation of business English talents in cross-border e-commerce under the background of industry-education integration [J]. Journal of Chinese Multimedia and Network Teaching (Mid-month Edition), 2025(07): 192-196.

[3] Dong Xiaoxiao, Zhou Dongdai, Huang Xuejiao, et al. Research on the construction method of educational knowledge graph model oriented by the development of disciplinary core literacy [J]. e-Education Research, 2022, 43(05): 76-83.

[4] Zhu Anbo. Translation strategies of Western literary theory terms [J]. Social Science Front, 2009(10): 273-275.

[5] Wu Chunping, Zhang Jun. "A dazzling array of blossoms" - on the misuse of professional terms in literary theory textbooks [J]. Journal of Fuyang Normal University (Social Science Edition), 2018(04): 91-96.

[6] Gao Shuni. Exploration and practice of case teaching method in the course of "Literary Criticism Theory and Practice" [J]. Taste · Classics, 2025(12): 138-140.

[7] Lai Liangtao. The cognitive semantic density of literary theory discourse and its implications for teaching [J]. Educational Linguistics Research, 2024(00): 180-190.

[8] Yang Jing, Ma Shaohui, Guo Yan, et al. Construction and application of knowledge graph in medical education from the perspective of new medical science [J]. Research and Practice in Medical Education, 2025, 33(06): 797-802.

[9] Zhang Suxia. Research framework, evolution and frontier comparison of blended college English teaching based on scientific knowledge graph [J]. Journal of Mudanjiang College of Education, 2024(09): 80-84.

[10] Baepler, P., & Murdoch, C. J. . Academic analytics and data mining in higher education[J]. International Journal for the Scholarship of Teaching and Learning, 2010,4(2), Article 17.

[11] Bertens, L. M. F. Concept maps for learning and assessment in philosophy. Arts and Humanities in Higher Education, 2022,21(3), 240-262.

[12] Silvia Pokrivcakova. Preparing teachers for the application of AI-powered technologies in foreign language education[J]. .Journal of Language and Cultural Education. 2019.

[13] Vogt L, Kuhn T, & R, H.Semantic units: organizing knowledge graphs into semantically meaningful units of representation. Journal of biomedical semantics.2024.