

Closing the Knowing–Using Gap: Project-Based Reform in ESP Courses

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Abstract: English for Specific Purposes (ESP) courses in China have long been hindered by the “knowing–using” gap: students memorize discipline-specific vocabulary and develop passive language skills, yet fail to apply them in authentic professional tasks. Unlike the traditional reading–translation model, PBL anchors learning in real-world projects consistent with professional discourse conventions. With guiding thematic questions, continuous exploratory learning and outcome-oriented training, PBL transforms inert knowledge into practical competence. A four-step teaching framework covering design, implementation, production and assessment is also proposed. It is ultimately verified that PBL reshapes ESP teaching towards practical learning, effectively bridging the divide between knowledge mastery and practical language use.

Keywords: ESP; Project-based learning; Knowing–using gap; Curriculum reform

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1. Introduction

Driven by the “Double First-Class” construction initiative, Chinese universities are under growing pressure to nurture graduates equipped with discipline-related English capabilities for publishing international papers, delivering conference presentations and engaging in cross-border professional exchanges ^[1]. Issued in 2020, *Guidelines for College English Teaching* in China officially identify ESP as a core curriculum component, serving as an important bridge between general English proficiency and subject-specific communicative demands ^[2].

Despite policy backing, present-day ESP classrooms still face a prominent disconnect between knowledge input and real-world application. Most students can recite specialized terms and grasp basic reading comprehension skills, but encounter substantial obstacles when undertaking authentic academic or professional assignments such as abstract composition, oral presentations and disciplinary discussions ^[3]. In many ESP classrooms, teachers still devote substantial class hours to text analysis, term explanation and syntactic parsing, leaving limited class time for students to practise productive language skills ^[4]. Viewed from a structural perspective, traditional ESP courses tend to prioritize knowledge accumulation intended for future use. Consequently, much of the knowledge students acquire remains passive and cannot be activated in

genuine professional contexts.

Given this real-world classroom dilemma, this study selects PBL as a practical alternative to ease the knowing-using mismatch. Rather than offering abstract theoretical guidance, PBL organises learning through contextualised assignments that generate tangible student outputs. This article proceeds in four major parts. It first sorts out underlying causes for the knowing-using gap observed in domestic ESP classrooms. Next, it discusses how PBL may remedy existing teaching deficiencies from a theoretical standpoint. It then builds a four-phase PBL operational framework adaptable to different ESP teaching scenarios. Finally, it puts forward actionable suggestions for ESP curriculum adjustment.

2. Structural analysis of the knowing-using divide in ESP teaching

The disconnection between what students know and what they can perform in English is more than a superficial classroom phenomenon. It originates from deep-rooted structural drawbacks embedded in widely adopted ESP teaching models.

For one thing, conventional ESP teaching separates vocabulary and grammar teaching from authentic communicative contexts. Many instructors spend plenty of class time explaining isolated linguistic rules, yet pay insufficient attention to how language functions in real-life situations. Students invest considerable effort memorising technical terms and completing decontextualised grammar drills. When facing actual academic or professional communication scenarios, however, they cannot flexibly draw on what they have memorised. Separating linguistic forms from communicative functions creates a misleading impression of effective learning. If teaching content fails to respond to genuine disciplinary needs, students will hardly build contextual awareness or flexible adjustment capabilities required for professional communication. This partially explains why many ESP courses consume abundant teaching hours yet deliver unsatisfactory practical learning outcomes.

Furthermore, the long-standing reading-translation teaching tradition prevails in many ESP classrooms and hinders the development of students' productive skills including academic writing, oral delivery and subject-specific presentations. Classroom activities largely revolve around text understanding, term explanation and sentence translation, keeping learners in a predominantly receptive state. Under such arrangements, ESP instruction is reduced to receptive-skill training. Even where students achieve satisfactory reading competence, they seldom get hands-on practice with genre-specific output tasks: drafting abstracts, composing technical reports, writing business proposals or delivering academic speeches^[4]. This imbalance widens the divide between what students learn and what they can actually perform in professional-oriented English tasks. Competent ESP proficiency is never limited to reading comprehension alone; it also requires learners to produce disciplinary texts and engage in discipline-relevant interactive exchanges.

Another key problem lies in how teachers utilise disciplinary teaching materials. Quite a few ESP educators treat domain-specific texts merely as reading materials for language drills instead of resources to cultivate disciplinary thinking. In traditional ESP classrooms, learning tasks mainly involve linguistic analysis and translation practice. Students seldom receive guided opportunities to carry out disciplinary reasoning using English. Upon finishing the course, learners may accumulate scattered terminology and translated phrases, but struggle to analyse professional challenges or express well-grounded disciplinary viewpoints in English. Such shortcomings create tangible barriers for their subsequent academic growth. When reading high-level international papers or participating in overseas academic events, numerous students feel under-prepared, as they have not formed thinking patterns compatible with English-medium professional communication. This

oversimplified teaching practice runs counter to one core objective of ESP education: helping learners build discipline-oriented thinking to complete professional tasks in English ^[5].

These recurring teaching difficulties stem from three structural defects within conventional ESP teaching arrangements. First, classroom learning is frequently detached from real-world contexts. English is presented as an abstract rule system for memorisation rather than a practical tool for solving professional problems, disconnecting linguistic knowledge from its actual application scenarios. Second, course design provides too few output-driven practice opportunities. Students seldom get space to integrate scattered knowledge points and organise information toward concrete professional objectives. Third, classroom operations remain heavily teacher-centred. Teachers take primary charge of knowledge explanation and error correction, leaving students with limited room to participate in knowledge construction and practical language application.

3. How PBL helps narrow the knowing-using gap in ESP instruction

PBL relies on three interlinked operational logics to mitigate the knowledge-application mismatch seen in ESP courses. Jointly, these logics shift classroom priorities away from mechanical knowledge memorisation and toward practical competence cultivation. Each logic targets specific defects within traditional ESP pedagogy, encouraging students to activate previously learned linguistic and disciplinary knowledge instead of simply storing information in memory.

Problem-driven design constitutes the first core feature of PBL. Under this design, all classroom activities unfold within realistic professional contexts, setting clear learning objectives both for language improvement and disciplinary understanding. Vocabulary and grammar are no longer learned for some vague future moment. Instead, learners work through practical professional challenges closely related to their career paths. Two typical examples include explaining technical solutions for non-specialist audiences and developing evidence-supported recommendations based on research datasets ^[6]. Beyond boosting student motivation, carefully framed driving questions reshape learners' perceptions of learning itself. Knowledge-seeking becomes problem-oriented: learners evaluate the practical value of new vocabulary, sentence patterns and disciplinary theories according to real-world usability ^[7]. This instructional design abandons decontextualised teaching routines and integrates knowledge-building into authentic communicative situations.

Extended cycles of inquiry represent another key feature of PBL, replacing superficial rote memorisation with deeper, connected understanding. Conventional ESP curricula often split subject content into disconnected teaching blocks. Vocabulary, reading passages and grammar items appear in separate class sessions. This fragmented coverage yields surface-level knowledge that learners struggle to transfer to new circumstances ^[8]. PBL adopts longer-term investigative cycles as an alternative. Across multiple weeks, learners collect source materials, review relevant literature, synthesise findings, adjust their perspectives and refine their project outputs. Repeated multi-faceted inquiry around core themes supports learners in building interconnected knowledge networks and flexible reasoning habits. Knowledge constructed through such ongoing investigation tends to be durable and transferable, matching cognitive demands posed by real-world professional challenges.

Finally, output-focused practice pushes learners to merge language proficiency, subject expertise and genre conventions for purposeful communication. Students generate concrete professional outputs such as research write-ups, presentation slides and formal proposals, mirroring text types commonly used in workplace and academic settings ^[9]. Working toward tangible outputs brings two cognitive-level benefits. For one thing, output assignments force knowledge integration. Rather than memorising facts passively, learners

need to filter, sort and restructure disjointed course content. At the same time, language skills and disciplinary understandings merge naturally. Learners deploy newly-acquired resources within authentic communicative settings, lowering risks that knowledge will remain unused in memory ^[6].

4. A four-stage implementation model for ESP-oriented PBL

The theoretical merits associated with PBL can only translate into observable teaching gains when put into structured classroom practice. This section lays out a practical four-stage implementation model adaptable to diverse ESP subject areas. Aligned with standard university teaching timetables, the model respects core PBL tenets: contextual authenticity, iterative inquiry and output-centred practice. It can therefore fit smoothly within existing ESP course delivery.

(1) Step 1: Project Planning and Pre-Class Preparation

This preparatory stage determines much of the quality of subsequent project work. Teachers first conduct targeted needs assessments. They draw on workplace observations, analyses of professional documents and official disciplinary teaching benchmarks to map key communication tasks and frequently-used academic genres relevant to each student cohort's major fields. Based on this assessment, dual learning targets get established: these cover both disciplinary development and language improvement, ensuring class activities support subject-specific thinking alongside English-language growth.

Developing suitable driving questions for each discipline sits at the heart of this preparatory phase. Well-formulated driving questions remain open-ended and carry moderate difficulty. They should sustain extended student inquiry while matching learners' current ability levels ^[7]. Teachers also define final project deliverables in advance. All class activities revolve around these end-products instead of isolated, one-off classroom exercises.

(2) Step 2: Scaffolded Practice and Collaborative Inquiry

In this phase, preliminary project plans translate into progressive, hands-on classroom activities. The whole project is divided into sequential subtasks contributing to final outputs. Each class session revolves around one core driving question, helping learners accumulate knowledge and competencies required for project completion ^[4]. Task decomposition prevents students from feeling overwhelmed by large-scale complex assignments. It also makes learning progress observable and helps sustain learner motivation.

Scaffolded instructional support lies at the heart of this phase. Teachers provide authentic learning resources such as academic papers, professional documents and industry case studies, helping students get familiar with field-specific linguistic features and genre conventions. Guidance concerning specialised vocabulary, sentence patterns and genre characteristics is embedded within task-based activities instead of delivered through isolated theoretical lectures ^[1]. Students are grouped into heterogeneous collaborative teams with clear role assignments to simulate real-world workplace teamwork. This arrangement encourages full-scale participation and peer-to-peer knowledge exchange. Teachers continuously track group progress and deliver targeted guidance. As students build up competence, instructional support is gradually reduced to foster learner autonomy.

(3) Step 3: Iterative Revision of Outputs to Build Practical ESP Competence

This output-producing phase is critical for improving students' ESP capacities and marks a clear dividing line between PBL and knowledge-driven traditional English teaching. Students draw on discipline-specific vocabulary, disciplinary discourse logics and genre norms accumulated in previous activities. They utilise these linguistic resources to complete and revise project outputs tailored to their own majors.

Unlike general-English writing drills, ESP outputs attach high priority to professional appropriateness and practical value. Learners go through repeated cycles of drafting, self-editing and group-based revision, receiving intermittent feedback from teachers and peers at key project milestones. Iterative revision involves far more than grammar correction. It guides students to refine professional argumentation, adjust reasoning frameworks and adopt academic or workplace-appropriate stylistic standards. Through repeated cycles, fragmented linguistic knowledge stored in memory evolves into actionable, standardized practical capabilities.

This phase also targets two essential literacy dimensions for ESP learners: genre awareness and audience awareness, both vital for future academic research and professional interaction. Disciplinary professional communication demands more than mere grammatical correctness; it sets higher standards for context-adapted expression.

In ESP practice, teachers prompt learners to revise their work from the standpoint of subject practitioners or academic readers, enhancing content depth, logical rigor and linguistic standardization. To further simulate real-world ESP scenarios, instructors set up discipline-specific simulation activities: academic defense rehearsals, professional project presentations, industry-oriented negotiation role-plays and other situational output exercises. Immersive subject-related language practice bridges the gap between classroom study and real-world professional requirements, moving closer to ESP's core objective: solving disciplinary problems through English.

(4) Step 4: Multi-Dimensional Assessment and Reflective Consolidation

PBL assessment runs through the full teaching cycle instead of focusing exclusively on final deliverables. At the start of this phase, teachers and students co-construct assessment rubrics. Shared rubrics enhance evaluation transparency and raise learners' awareness of learning targets, strengthening their subjective engagement^[9]. Assessment covers multiple dimensions: factual accuracy of content, linguistic appropriateness, adherence to genre conventions, creative thinking, and collaborative performance. By participating in rubric design, students gain a clearer understanding of evaluation expectations.

Multiple assessment approaches are adopted in combination. Self-assessment encourages learners to reflect on personal progress and existing deficiencies. Peer review helps develop learners' critical thinking and task-judgement abilities. Teacher assessment provides discipline-informed feedback covering both learning processes and final outputs. When practical conditions permit, industry practitioners or academic supervisors can join assessment work to improve evaluation authenticity and credibility^[5]. Lastly, students conduct comprehensive reflection across the whole project process. They summarise difficulties they have encountered and corresponding problem-solving strategies, consolidating practical experience and laying foundations for follow-up PBL activities.

These four inter-connected stages constitute a complete cyclic PBL teaching system. This framework features strong flexibility: teachers can adjust concrete operations according to disciplinary traits, institutional teaching conditions and student proficiency levels, so it can be applied across diverse ESP contexts.

5. Conclusion

This paper discusses project-based learning as a feasible solution targeting the long-standing structural mismatch between knowledge acquisition and practical language application within Chinese university ESP teaching. The analysis follows a clear logical thread. It first identifies three root causes for the knowing-using gap: decontextualised teaching arrangements, insufficient output-oriented design and teacher-dominated classroom organisation. It then illustrates how PBL converts static textbook knowledge into practical professional English competence. A four-phase operable PBL framework suitable for different ESP contexts is

proposed accordingly.

Even so, effective PBL implementation cannot rely solely on in-class teaching. It requires matching external supporting conditions. Sufficient project cycles must be guaranteed so students can complete in-depth inquiry and integrate disciplinary knowledge^[3]. In daily teaching practice, instructors need to strike a reasonable balance between scaffolded guidance and learner autonomy. They should maintain PBL's student-centred nature while avoiding inefficient unguided exploration. Furthermore, universities need to deliver solid institutional support: reasonable curriculum scheduling, abundant disciplinary teaching resources, targeted teacher training and multi-dimensional evaluation mechanisms that value both process and outcomes. Apart from improving students' professional English proficiency, PBL also fosters collaborative skills, critical thinking and disciplinary literacy. By embedding knowledge-learning into authentic application contexts, project-driven approaches ease the fundamental separation of knowledge and practice that exists within traditional ESP education.

Disclosure statement

The authors declare no conflict of interest.

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