

Exploration on Cultivating College Students' Professional English Learning Ability based on Deep Learning

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Abstract: With the accelerating globalization and the rapid development of information technology, the cultivation of college students' professional English learning ability is facing new challenges and opportunities. As an emerging learning concept, deep learning emphasizes that learners, on the basis of understanding the essence of knowledge, achieve in-depth integration and application of knowledge through the development of critical thinking, problem-solving, and innovation capabilities. This paper aims to explore the strategies for cultivating college students' professional English learning ability based on deep learning, in order to provide useful references for improving college students' professional English proficiency and international competitiveness.

Keywords: Deep learning; Professional English; Learning ability

Online publication: Oct 22, 2025

1. Introduction

In today's era of deep integration of globalization and the knowledge economy, proficiency in English for Specific Purposes (ESP) has become a core competency for college students to participate in international academic dialogues, master cutting-edge professional knowledge, and enhance their future career competitiveness. However, a review of current professional English teaching practices in colleges reveals significant pain points, which includes the teaching content, where often focuses on general vocabulary and basic grammar, with only superficial integration with students' professional fields, leading to a "disconnect between learning and application"; teaching methods mostly follow traditional language teaching models, centered on teachers' lectures, students' passive acceptance, and mechanical memorization, lacking situational design that guides students to think deeply, construct knowledge actively, and apply what they learn ^[1]. Facing this dilemma, the "Deep Learning" theory in the education field provides a highly promising direction to solve the problem. Different from shallow information reception and memorization, deep learning emphasizes

learners' active participation, meaning construction, critical thinking, knowledge transfer, and the development of abilities to solve complex problems. It requires learners to go beyond surface facts, understand the essence of concepts, establish complex connections between knowledge, and flexibly apply what they have learned in new situations ^[2].

Therefore, systematically integrating the concepts and methodologies of deep learning into the college professional English teaching system and exploring paths to cultivate students' professional English learning ability based on deep learning is not only an urgent need to improve teaching effectiveness but also an inevitable requirement to respond to the era's demand for cultivating high-level, interdisciplinary, and innovative international talents, with profound theoretical and practical significance.

2. Necessity of cultivating college students' professional English learning ability based on deep learning

2.1. Core demand for responding to global challenges and enhancing talents' international competitiveness

Currently, international academic exchanges are increasingly frequent, and cutting-edge scientific and technological literature, international industry standards, and transnational cooperation projects all use English as the main carrier. As the backbone of the country's future scientific and technological innovation and professional fields, college students' professional English ability directly affects the depth and breadth of their absorption of advanced global knowledge, participation in international competition and cooperation. The traditional teaching model, which focuses on language forms and shallow understanding, cannot enable students to navigate complex real-world international academic or professional scenarios with ease ^[3]. The high-order thinking and knowledge transfer abilities advocated by deep learning are the key to solving this dilemma. Through deep learning-oriented professional English training, students can go beyond the surface of language, deeply understand the knowledge logic, discourse system, and academic norms of their professional fields, critically absorb information, creatively express viewpoints, and effectively communicate professionally, thereby truly possessing the professional discourse power and competitiveness required on the international stage, meeting the country's strategic demand for high-level international talents.

2.2. Inherent requirement for breaking through the efficacy bottleneck of traditional professional English teaching

Traditional professional English teaching often falls into the predicament of "time-consuming and inefficient", rooted in the backwardness of teaching concepts and methods. On one hand, teaching content is easily disconnected from professional knowledge, reduced to "advanced general English", failing to closely align with the core concepts, ways of thinking, and communication paradigms of specific disciplines; on the other hand, teaching methods are mostly teacher-centered, adopting cramming lectures and fragmented exercises, with students in a passive acceptance state. This model inhibits learners' subjectivity, curiosity, and exploration desire, leading learning to remain at the level of memory and shallow understanding, making it difficult to form lasting and transferable professional language abilities ^[4]. The concept of deep learning directly addresses these pain points, emphasizing the initiative, constructiveness, and situationally of learning. It requires teaching activities to focus on guiding students to actively explore real problems in their professional fields, and deeply process the combination of language forms and professional content in the process of solving meaningful tasks. Through deep learning activities such as collaborative discussions, reflective questioning, and project practice,

students can actively construct networked connections between language, professional knowledge, and skills, achieving a leap from “knowing what” to “understanding why” and “being able to do what”, fundamentally improving the depth, efficiency, and durability of learning, and breaking through the efficacy ceiling of traditional teaching.

2.3. Inevitable choice for conforming to the nature of professional English ability and promoting students’ comprehensive development

Professional English ability is by no means a simple accumulation of vocabulary and grammar rules; its essence is a complex, contextualized, high-order ability that integrates language skills, professional cognition, critical thinking, cross-cultural communication strategies, and academic or career literacy. It requires learners to accurately understand complex information, clearly express professional insights, and effectively implement professional actions in specific professional contexts. The formation of such ability necessarily relies on in-depth cognitive participation and continuous practical reflection. Deep learning aims to promote the comprehensive development of students’ cognitive abilities, metacognitive abilities, and social-emotional abilities ^[5]. By designing challenging real tasks, it urges students to conduct in-depth information processing, establish connections between old and new knowledge, reflect on learning processes and strategies, and communicate and negotiate in collaboration, thereby not only acquiring language itself but also simultaneously developing core literacy that supports their lifelong learning and professional development. Therefore, the training model based on deep learning is the only way to truly touch the core of professional English ability, achieve the unity of instrumentality and humanity, and promote students’ sustainable development as “complete individuals” in professional fields.

3. Paths for cultivating college students’ professional English learning ability based on deep learning

3.1. Reconstructing curriculum objectives and content systems, focusing on high-order ability development in real scenarios

The primary link in the training path lies in a complete shift in the core orientation of curriculum design, from mere language knowledge transmission to high-order ability cultivation guided by the concept of deep learning. Curriculum objectives should clearly go beyond vocabulary memorization and grammar rules, focusing on students’ comprehensive ability to use English for in-depth understanding, critical analysis, innovative expression, and effective collaborative problem-solving in specific professional fields. Correspondingly, teaching content needs in-depth innovation, completely abandoning general materials divorced from professional contexts, and systematically integrating authentic, complex, and meaningful corpus resources from the cutting-edge of students’ disciplines. These include but are not limited to full texts of classic and frontier academic literature, international industry standards and norms, real project case reports, international conference speech videos, professional technical documents, and simulated workplace communication scenarios. Around these authentic corpora, design learning activities based on complex tasks, such as requiring students to deeply analyze the research logic and limitations of literature, design solutions based on English technical specifications, simulate international academic conferences for research reporting and defense, or collaboratively complete professional papers that meet international publication standards ^[6]. Through exposure to authentic professional discourse and participation in highly simulated professional practices, students can deeply understand professional concept systems, academic discourse conventions, and professional

communication paradigms in the process of solving practical problems, achieving in-depth integration and active construction of language forms, professional content, and thinking abilities, laying a solid task foundation for deep learning ^[7].

3.2. Innovating teaching methods and models, activating students' subjectivity and in-depth cognitive participation

The key to achieving deep learning lies in completely changing the traditional classroom model dominated by one-way teacher indoctrination, and adopting teaching methods that can effectively stimulate students' initiative and promote in-depth thinking and collaborative exploration. A student-centered, problem-oriented, and task-driven teaching paradigm should be vigorously promoted. Specific strategies include: implementing inquiry-based learning, guiding students to independently collect, screen, and analyze English materials around core issues or controversial topics in their professional fields, form and demonstrate personal insights; promoting project-based learning, organizing students to work in groups to experience the entire process from project initiation, plan design, data research, outcome production to final English presentation or complete project report writing, deeply applying language in solving real or highly simulated professional projects; conducting in-depth case-based discussions, selecting English cases containing complex professional information and decision points, organizing students to conduct multi-angle analysis, role-playing, debates, and reflections to deepen understanding of professional concepts and language expression; utilizing technology to enable blended learning, with online platforms providing rich authentic corpora, interactive resources, and personalized learning paths to support independent exploration and basic training, while offline classrooms focus on in-depth discussions, collaborative problem-solving, high-order thinking training, and immediate feedback ^[8,9]. The core of these methods is to create challenging situations, prompting students to actively engage in in-depth information processing, establish knowledge connections, reflect and question, collaborate and negotiate, and achieve active knowledge construction and substantial ability improvement in "learning by doing", "learning by using", and "learning by thinking" ^[10].

3.3. Reshaping teacher roles and learning environments, providing scaffolds and ecological support for deep learning

Deep learning-oriented professional English training places new demands on teachers' roles; teachers need to transform from authoritative knowledge transmitters to designers, facilitators, guides, and collaborators of learning. Teachers' core responsibilities lie in carefully designing challenging and meaningful learning tasks, building clear learning scaffolds, and providing timely and accurate guidance and feedback during students' exploration. This requires teachers to not only have solid language skills but also possess certain subject content knowledge and a deep understanding of deep learning concepts, being able to keenly insight into students' learning difficulties and thinking processes, and guide students to think deeply, establish knowledge connections, reflect on learning strategies, and gradually move towards autonomy through questioning, inspiration, demonstration, and resource recommendation ^[11]. At the same time, creating a safe, open, collaborative, and supportive learning environment is crucial. Encourage students to ask questions boldly, dare to question, and be willing to share views; even in the face of imperfect language expression or cognitive errors, regard them as valuable resources in the learning process. Actively build learning communities, promote in-depth dialogue, viewpoint collision, mutual learning, and knowledge co-construction among students through well-designed group collaborative tasks and classroom interaction mechanisms. Teachers should actively use

information technology to build intelligent, interactive, and personalized learning spaces, providing convenient access to authentic corpora, platforms supporting collaborative creation, tools for immediate language or content feedback, and environments for recording and reflecting on the learning process, comprehensively supporting the occurrence and development of deep learning ^[12].

3.4. Constructing a diversified process-oriented evaluation system, focusing on ability development and in-depth understanding

Evaluation is a baton, the traditional evaluation method, which is mainly based on summative examinations and focuses on discrete testing of language knowledge points, runs counter to deep learning goals. It is necessary to establish a matching diversified, process-oriented, and developmental evaluation system, with the core being to focus on students' learning processes, depth of thinking, ability development, and application performance. The evaluation subjects should be diversified, integrating teacher evaluation, student self-evaluation, and peer evaluation to promote the development of students' metacognitive abilities. Evaluation methods should be diversified: performance-based evaluation occupies a core position, such as observing students' actual performance in project practice, case discussions, and simulated conferences, and evaluating their comprehensive ability to use professional English for understanding, analysis, expression, and collaboration; portfolio assessment systems collect process materials such as students' participation in inquiry activities, completed phased reports, reflection logs, and revised drafts, showing their learning trajectories, efforts, depth of thinking, and progress; rubric-based assessment clearly defines specific standards for various deep learning abilities, providing students with clear goal guidance and transparent evaluation basis for evaluating the quality of project outcomes, research reports, oral presentations, and more ^[13]. Reflective evaluation encourages students to write learning reflections, examining their learning strategies, thinking processes, challenges encountered, and overcoming methods, promoting metacognitive development ^[14]. Evaluation content should focus on whether students can deeply understand the connotation and logic of professional materials, critically analyze and evaluate information, creatively use English to express complex professional ideas, and effectively communicate and solve problems in collaboration. This evaluation system, which emphasizes processes, abilities, and in-depth understanding, can not only more accurately measure learning effectiveness but also feed back into teaching, guiding teachers and students to continuously focus on the achievement of deep learning goals ^[15].

4. Conclusion

The active exploration, in-depth understanding, critical thinking, and transfer application emphasized by deep learning provide a fundamental basis for solving the persistent problem of "disconnect between learning and application" in traditional professional English teaching. Integrating deep learning principles into the entire process of curriculum design, teaching practice, and evaluation feedback can effectively promote the in-depth integration of students' language skills, professional cognition, and high-order thinking abilities, thereby cultivating interdisciplinary talents truly capable of international academic exchanges and professional competition.

Funding

Jiangsu Provincial Philosophy and Social Science Research Project, "Research on Data Mining Technology Empowering Course Teaching - Taking 'Criminal Science and Technology Professional English' as an

Example” (Project No.: 2021SJA0493); Research Project on Education and Teaching Reform of Jiangsu Police Academy, “Exploration and Research on Multi-dimensional Practical Training of Trace Inspection Course” (Project No.: 2022B14)

Disclosure statement

The author declares no conflict of interest.

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