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Research on Deep Learning Strategies of College Students in English Lexicology in the Blended Learning Context: A Case Study of English Lexicology

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Abstract: Against the backdrop of educational digital transformation, blended learning has become a major direction of curriculum reform in higher education. Addressing the problems that the course English Lexicology is highly theoretical and that research integrating this field with deep learning remains scarce, this study takes English Lexicology as the entry point and explores deep learning strategies for college students' English vocabulary learning under blended learning. Grounded in relevant theories, the study constructs a strategy system combining online autonomous learning with offline interactive learning, and conducts a teaching practice in two parallel classes of English majors at the author's institution. The practice confirms that the proposed strategy helps students make progress, enriches teaching theory, and provides practical reference for similar courses. However, the study has limitations such as limited sample representativeness; future research may extend cross-institutional practice and explore pathways for artificial intelligence to empower strategy optimization.

Keywords: Blended Learning; Deep Learning Strategies; English Lexicology; College Students

1. Introduction

1.1 Research Background and Significance

In the context of educational digitalization, the state has implemented the policy of "educational digitalization," and blended learning has become an important direction of curriculum reform in universities. Taking the course English Lexicology as an example, this study explores its application in the deep learning of English lexicology among students at independent colleges. The research background comprises three dimensions: policy promotion, disciplinary pain points, and learning-context characteristics. National policy support has made blended learning a direction of curriculum reform; nevertheless, English Lexicology is highly theoretical, and traditional teaching leads students to "know but be unable to use," making deep learning difficult to achieve. Moreover, students at independent colleges generally have a weak English foundation and insufficient initiative in vocabulary learning, and they have a high demand for fragmented and interactive learning. The significance of this study lies in filling the research gap between "blended learning and deep learning of lexicology," enriching the theory of English teaching in application-oriented undergraduate education, and at the same time providing operable teaching strategies for teachers of English Lexicology in other independent colleges, helping students break through the "shallow learning" bottleneck in vocabulary acquisition.

1.2 Literature Review

In the field of blended learning, scholars at home and abroad have conducted extensive and in-depth explorations. Foreign scholars such as Garrison and Anderson proposed the Community of Inquiry framework, emphasizing interaction and collaboration among learners in blended learning and highlighting learners' sense of participation and autonomy throughout the learning process [1]. In addition, scholars such as Richardson and Mayer have discussed the application of blended learning across disciplines, particularly in language learning, including practical research on blended learning in English teaching (Richardson, 2002) [2]. Furthermore, the introduction of Web 2.0 tools has provided new technical support for blended learning, such as online collaboration platforms and virtual learning communities, offering learners more flexible and interactive learning environments (Mayer, 2009) [3].

In China, research on blended learning has also

gradually emerged. Wang Li (2020), publishing in Education Observer, discussed the application of blended learning in English teaching and pointed out its advantages in enhancing student engagement and learning outcomes [4]. Zhang Hua (2021), in Foreign Language World, investigated the practical exploration of blended learning in lexicology teaching and emphasized the integration of online resources with offline interaction [5]. In addition, Chen Jing (2022), published in Higher Education Research, explored blended learning strategies in English teaching at independent colleges and identified the potential of blended learning to improve students' learning interest and outcomes [6].

However, although scholars at home and abroad have conducted certain research on blended learning, specialized studies targeting "independent colleges" or the course "English Lexicology" remain scarce, and systematic research on the integration of "deep learning" and "blended learning" is even more lacking. Current research mostly focuses on comprehensive universities or research-oriented universities, with limited attention to independent colleges, leaving a research gap with respect to the object of this study-the English Lexicology course at independent colleges. Therefore, this study aims to fill this gap by exploring the application of blended learning in English lexicology teaching at independent colleges, so as to enhance the depth and effectiveness of students' vocabulary learning.

1.3 Research Design and Methods

The research methods adopted in this study include the literature research method and the questionnaire survey method. The relevant theoretical foundations comprise blended learning theory, deep learning theory, and the core theories of English lexicology. Blended learning theory focuses on integrating the flexibility of "online autonomous learning" with the depth of "offline classroom interaction" to achieve a teaching effect of "1+1>2." Deep learning theory emphasizes students' "understanding, association, application, and transfer" of knowledge, thereby forming systematic cognition. The core theories of English lexicology involve multiple dimensions of vocabulary, including phonology, semantics, grammar, collocation, and pragmatics, providing a solid theoretical foundation for strategy design.

2. Theoretical Foundations

2.1 Blended Learning Theory

The core of blended learning lies in integrating the flexibility of "online autonomous learning" with the depth of "offline classroom interaction," and achieving a teaching effect of "1+1>2" through technology [7]. Its theory derives from constructivist learning theory, which emphasizes that learners actively explore in authentic situations and construct knowledge systems through collaboration [8]. In the course English Lexicology, the application of blended learning has a clear orientation: online delivery of foundational knowledge (e.g., explaining the word-formation rules of roots and affixes), and offline focus on in-depth interaction (e.g., analyzing the associations of vocabulary within semantic fields) [9]. This model breaks through the temporal and spatial constraints of traditional classrooms, effectively addresses the fragmentation of online learning, and improves students' learning engagement and the efficiency of knowledge internalization.

2.2 Deep Learning Theory

Deep learning differs from shallow learning, which "memorizes facts"; it emphasizes students' "understanding, association, application, and transfer" of knowledge to form systematic cognition [10]. In the field of English lexicology, its goal is not merely to memorize vocabulary forms, but also requires students to master the logical relationships of roots and affixes, distinguish semantic differences, and use vocabulary flexibly in authentic contexts [11]. For example, students should analyze the semantic extension of "tele-" (far) in "telephone," "telegraph," and "telescope," so as to understand the word-formation rules and cultural connotations of vocabulary. Deep learning relies on stimulating higher-order thinking activities, such as critical analysis and creative application, which often need to be accomplished through the coordinated online-offline design of blended learning [12].

2.3 Core Theories of English Lexicology

The theoretical framework of English lexicology provides the basis of "what to teach" and "how to teach" for the design of deep learning strategies. First, the vocabulary knowledge framework covers dimensions such as

phonology and semantics, clarifying the systematic requirements of vocabulary teaching; for instance, when teaching "roots and affixes," one should explain phonetic changes, semantic extension, and grammatical functions. Second, the theories of roots and affixes and semantic field theory are the core content of English Lexicology and are also the key modules that deep learning strategies focus on. The theory of roots and affixes parses the constituent elements of vocabulary to help students understand generative logic; semantic field theory categorizes vocabulary to strengthen associative memory and application ability.

3. Construction of Deep Learning Strategies for English Lexicology under Blended Learning

3.1 Online Autonomous Learning Strategies

Students at the author's institution generally have a weak English foundation and insufficient ability to systematically organize knowledge. In response to this situation, modular online resources need to be designed around the core chapters of English Lexicology, such as "roots and affixes" and "semantics." Drawing on the Community of Inquiry model proposed by Garrison et al., online resources should address both Cognitive Presence and Teaching Presence. The specific strategies are as follows:

First, combine with a "knowledge graph of English word-formation," such as self-drawn mind maps, using visualized charts to organize the associations among roots, affixes, and derivatives, thereby helping students establish a systematic cognitive framework.

Second, assign "vocabulary discrimination quizzes" on the Chaoxing Xuexitong (Superstar Learning Pass) platform-for example, distinguishing the semantic differences between "bio-" and "geo-"-and provide instant feedback and error analysis to strengthen students' internalization of knowledge.

Third, require students to preview "word-formation" online and complete basic exercises, such as marking roots and affixes in given words.

3.2 Offline Classroom Interaction Strategies

Online preview lays the foundation for offline in-depth interaction. Based on the flipped classroom model of blended learning [13], offline classrooms need to shift from "knowledge transmission" to "problem solving." Students' application ability should be reinforced through concrete cases, and output tasks (such as writing and translation) can promote the externalization of linguistic knowledge. The specific procedure is as follows:

First, in groups, students discuss "how to analyze long and difficult words using roots and affixes," taking "telecommunication" as an example; the teacher provides guiding questions, such as "In which words does '-tele-' mean far?", and summarizes common patterns.

Second, select representative vocabulary cases-for example, the semantic differences of the root "aut-" in "autobiography" and "automobile"-and organize students to analyze the word-formation process on the spot.

Third, expand on the "cultural background of vocabulary," such as the origins of Greek/Latin roots and the phenomenon of French/German loanwords in English, to enhance the interest of learning [14].

3.3 Integrated Online-Offline Assessment Strategy

Traditional assessment focuses on summative results and tends to neglect the learning process. Process-oriented assessment needs to cover both "online behavior" and "offline performance." The specific indicators are as follows:

Online: resource learning duration, completion of interactive tasks (e.g., quiz accuracy, check-in frequency). Offline: degree of participation in group discussion, quality of mind map presentation.

The final examination should reduce purely memory-based questions and increase applied question types. Referring to Nation's [15] "vocabulary knowledge framework," the assessment should cover the three dimensions of "form–meaning–use." Specific question types include: writing a short passage using specified roots to test word-formation application ability; and discriminating the usage of near-synonyms in context, such as the differences among "large / vast / immense" when describing "the ocean," to test semantic discrimination ability.

4. Practical Validation of the Deep Learning Strategies

4.1 Implementation Process

Two parallel classes of English majors at an independent college were selected as the research participants. One class was designated

as the experimental class, adopting the above-mentioned deep learning strategies for English Lexicology under blended learning; the other class served as the control class, following the traditional teaching model. The practice lasted for one semester, totaling 16 weeks.

In the experimental class, teaching was carried out strictly according to the constructed deep learning strategies. In the online component, structured resources were delivered weekly on schedule, including online materials and knowledge graphs, along with interactive tasks and fragmented learning content. In the offline component, case analysis practice, interactive Q&A, and targeted tutoring and extension activities were conducted. Meanwhile, students' learning process and summative outcomes were evaluated according to the integrated online-offline assessment strategy. The control class adopted the traditional teaching model, dominated by teacher-led classroom lectures, mainly explaining the theoretical knowledge of English Lexicology, assigning an appropriate amount of homework, and administering a unified paper-and-pencil examination at the end of the term.

4.2 Results Analysis

4.2.1 Learning satisfaction survey

To gain in-depth insight into learning satisfaction, a detailed learning satisfaction questionnaire was carefully designed, covering multiple dimensions such as teaching content, teaching methods, learning resources, and learning outcomes, and a comprehensive and in-depth survey was conducted among students in both classes. The results clearly showed that students in the experimental class had significantly higher overall satisfaction with the instruction than those in the control class. Specifically, experimental-class students generally reported that the online learning resources were not only abundant in quantity but also diverse in form, fully meeting their learning needs. In addition, the interactive learning tasks and the rich and varied offline activity design were both interesting and effective; these teaching methods effectively stimulated their learning interest and significantly improved their understanding and application ability of English lexicology knowledge. Through these diversified teaching approaches, experimental-class students achieved more notable progress and outcomes in their English lexicology learning.

4.2.2 Learning behavior observation

During the teaching process, the researcher conducted careful observation of the learning behaviors of students in both classes. Comparative analysis revealed that experimental-class students demonstrated a more proactive learning attitude in the classroom. They not only actively participated in class discussions but also frequently interacted with the teacher and other classmates, showing high learning enthusiasm and engagement. Specifically, when the teacher asked questions, experimental-class students could think quickly and raise their hands to speak actively; in group discussion, they could also put forward in-depth insights and push the discussion to a deeper level. In contrast, students in the control class performed more passively; their main learning mode consisted of listening and note-taking, with little active participation in class discussion and interaction. In the classroom, most control-class students sat quietly in their seats, focused on listening to the teacher's explanation and taking detailed notes, lacking the initiative to think and express themselves actively.

Furthermore, in terms of after-class online learning, the participation of experimental-class students was markedly better than that of the control class. Experimental-class students could log on to the online learning platform on time, watch teaching videos earnestly, actively participate in online discussions, and complete various learning tasks assigned by the teacher on schedule, fully demonstrating their autonomous learning ability and time management skills. By comparison, control-class students showed lower participation in after-class online learning; some students procrastinated and failed to complete learning tasks in time, which negatively affected their overall learning outcomes.

4.3 Practical Conclusions

Through one semester of practical validation, under the background of blended learning, the deep learning strategies for English Lexicology have shown significant effectiveness in improving students' academic performance, enhancing learning satisfaction, and improving learning behaviors. This strategy can effectively address the difficulties encountered by independent-college students in English lexicology learning and promote students' deep learning. In addition, it provides valuable reference for the teaching reform of other similar

courses.

5. Conclusion and Future Directions

5.1 Research Conclusions

Based on blended learning theory, deep learning theory, and the core theories of English lexicology, this study addresses the problem of "shallow learning" in the course English Lexicology, constructs a coordinated online-offline deep learning strategy system, and verifies its effectiveness through classroom practice. The main conclusions are as follows:

First, blended learning has achieved remarkable results in breaking through shallow learning: through the precise delivery of structured online resources and the organic integration of offline project-based discussion, experimental-class students performed significantly better than the control class on applied vocabulary questions (such as root-based word formation and near-synonym discrimination), fully demonstrating that this strategy can effectively promote students' transition from "memorizing facts" to the deep learning model of "understanding, application, and transfer."

Second, the core strategies are highly operable: strategies refined through the research, such as "knowledge graph" and "case analysis," have been unanimously recognized by experimental-class students as "the most effective method for improving vocabulary application ability" because they precisely adapt to students' fragmented learning needs.

Third, process-oriented assessment effectively promotes learning engagement: by incorporating online resource learning duration, interactive task completion, and offline group discussion participation into the assessment system, the classroom participation rate of experimental-class students improved significantly compared with the control class, thereby verifying the effectiveness of the mechanism of "assessment promotes learning."

5.2 Limitations and Future Research

The sample representativeness of this study is limited. The practice was conducted only with two classes and did not cover student groups with different English proficiency levels and learning styles; the generalizability of the conclusions needs further verification. In addition, the practice period of the study is relatively short. A one-semester practice cycle is insufficient to comprehensively observe the impact of the strategy on students' long-term vocabulary retention; the research cycle needs to be extended to test the sustained effect of the strategy. Furthermore, the application of technical tools in this study is inadequate. The current strategy relies on basic learning platforms (such as Chaoxing Xuexitong) and does not fully integrate AI tools (such as personalized resource recommendation and intelligent Q&A), which may limit the precision of blended learning.

Future research may expand the scope of practice by collaborating with multiple independent colleges to conduct cross-institutional practice, compare the adaptability of the strategy under different learning contexts, and distill more universally applicable teaching plans [16].

In addition, AI technology can be integrated to optimize the learning experience. An AI vocabulary learning system may be introduced to dynamically push personalized learning tasks (such as targeted exercises for easily confused roots) by analyzing students' online learning behavior data (such as answer accuracy and resource browsing duration), so as to improve the precision of blended learning [17].

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