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Current Status and Implications of Online Autonomous Learning in College English Based on Online Learning Data: A Case Study of Learning Data from the "Lighthouse Reading" Platform

Qiaoling Li*

Chengdu College of Arts and Sciences, Chengdu 610400, Sichuan, China

**Author to whom correspondence should be addressed.*

Abstract: With the deepening advancement of educational informatization and the advent of the 2.0 era, online autonomous learning has become an important component of college English teaching and a key breakthrough in its reform. Based on the Self-Determination Theory and Self-Regulated Learning Theory, this study analyzes the learning data from the "Lighthouse Reading" platform in the first half of 2025 at a university to examine the current status of college students' online autonomous learning in English. The results reveal a significant polarization in students' online learning, reflected not only in learning duration and task completion rates but also in the differences in learners' self-regulation abilities. Additionally, the study finds that learning engagement and outcomes are positively correlated, but nonlinear—mere time investment does not guarantee learning quality, as the key lies in the application of effective metacognitive strategies for deep learning. These findings provide important theoretical foundations and practical guidance for optimizing college English online teaching models.

Keywords: Online autonomous learning; College English; Learning behavior analysis; Teaching reform

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1. Introduction

Against the backdrop of the deep integration of information technology and education and the digital transformation, online autonomous learning platforms, as a valuable supplement to traditional classroom teaching, break through temporal and spatial constraints, meet students' personalized learning needs, and offer new possibilities for college English teaching, reshaping its pedagogical ecosystem. However, in practice, students' online learning outcomes vary significantly. By analyzing real learning data from the "Lighthouse Reading" platform, this study aims to reveal the current state of college learners' autonomy in online

English learning and provide data-driven support and improvement suggestions [1–2]. The Self-Determination Theory emphasizes the internalization of learning motivation, proposing that the satisfaction of three basic psychological needs—autonomy, competence, and relatedness—is key to stimulating intrinsic motivation [3]. Zimmerman's Self-Regulated Learning Theory suggests that successful learners often exhibit stronger abilities in goal setting, strategy selection, and self-monitoring [4]. The integration of these theoretical perspectives provides a multidimensional foundation for analyzing the "Lighthouse Reading" platform data.

2. Research on student autonomy in foreign language teaching

The cultivation of college students' online autonomous learning ability in English has become a core objective of teaching reform, with its theoretical roots in the constructivist perspective of learners' active construction of knowledge [5]. Existing research indicates that fostering students' autonomous learning ability is a requirement of quality education and lifelong learning. College English is well-suited for autonomous learning, and the cultivation of such ability is crucial in higher education. However, autonomous learning requires teacher guidance, and educators should adhere to principles such as inquiry-based learning and routinization to stimulate student autonomy from four aspects: motivation, goals, etc. [6]. This necessitates a shift in the teacher's role from knowledge transmitter to facilitator, fostering students' autonomous awareness through metacognitive strategy training, task-based activity design, and formative assessment [7]. Blended learning, combining traditional and online learning advantages, can reflect student-centeredness. Related research has also explored its role in promoting autonomy in academic English learning, using a model of "autonomous learning + classroom teaching + online interaction" to enhance student abilities and cultivate international talents [6]. Furthermore, scholars have noted that in academic English teaching, teachers can leverage online resources and technology to help students master communication methods and improve comprehensive application skills [8]. Empirical studies show that online platforms can increase students' goal-setting ability by 40% and self-monitoring rates by 65% [9]. Moreover, Challenges such as students' initial dependence and platform functional limitations are prominent [7]. Current research gaps focus on the extent of teacher intervention in blended learning, optimization of platform interactivity, and long-term evaluation mechanisms, providing theoretical entry points and practical references for analyzing the current status of online autonomous learning based on "Lighthouse Reading" data. However, while these studies reveal the developmental paths and challenges of online autonomous learning, few delve into the dynamic practice of student autonomy based on real learning behavior data. This study leverages the massive learning logs and interaction records of the "Lighthouse Reading" platform to quantitatively analyze students' behavioral trajectories in core areas such as goal setting, strategy selection, and process monitoring, aiming to reveal the true landscape of college English online autonomous learning and offer data-driven solutions to key issues like "difficulty in strategy implementation" and "weak platform adaptability."

3. Data analysis and current status

An in-depth analysis of the "Lighthouse Reading" platform data reveals distinct patterns in college students' online English learning behaviors, presenting a complex landscape. Firstly, there exists significant polarization in student engagement levels. While some learners demonstrate exceptionally high participation with cumulative study durations exceeding 1,000 minutes, others show minimal involvement (less than 10 minutes) or complete non-participation. This disparity manifests not only in absolute time investment but more critically in the

consistency and sustainability of learning behaviors. The data indicate a pronounced "last-minute cramming" phenomenon, where platform activity remains low during early semester periods but surges significantly as midterm and final assessments approach. Notably, students maintaining regular study routines consistently outperform their cramming counterparts in learning outcomes, suggesting that such emergency learning patterns are detrimental to long-term knowledge retention and language proficiency development.

Secondly, regarding learning outcomes and task completion, while greater time investment generally correlates with better performance, this relationship is not absolute. A subset of students dedicates substantial time yet achieves suboptimal results, indicating that temporal commitment alone cannot guarantee learning quality; study methods and efficiency prove equally crucial. The platform data reveal a stratified distribution of reading task completion: approximately 35% of students exceed requirements (typically scoring above 95), 45% meet basic standards (scoring 80-95), while 20% complete less than half of tasks (mostly failing). Among task-completers, outcome differentials primarily reflect quality rather than quantity of engagement, with high-quality performers demonstrating markedly superior comprehension depth and language application skills compared to superficial participants.

Furthermore, students employing elaboration strategies that facilitate connections between new and prior knowledge significantly outperform peers relying on surface-level learning approaches [10]. The platform's data analytics identify characteristic forgetting curves among learners, prompting critical reconsideration of online activity design and scheduling. Additionally, the absence of meaningful interaction mechanisms in the virtual learning environment may constrain cognitive development for certain learners, explaining why mere quantitative increases in reading volume fail to produce commensurate gains in language competence.

4. Existing problems

Current online autonomous learning in college English faces multifaceted challenges. Empirical data reveal that approximately 15% of students exhibit negative attitudes toward online learning, typically manifesting as passive compliance or complete non-participation. In-depth analysis identifies the absence of clear learning objectives and intrinsic motivation as primary causative factors. From the perspective of Self-Determination Theory, when the learning environment fails to satisfy students' three fundamental psychological needs — autonomy, competence, and relatedness — motivation deterioration becomes inevitable [3]. The 15% disengaged learner cohort in the platform data essentially represents this motivational predicament.

Regarding learning plan implementation and self-regulation, while many students establish study plans, consistent execution proves challenging. Platform analytics demonstrate discontinuous and arbitrary learning patterns characterized by inadequate sustainability and systematicity, particularly evident in the absence of direct teacher supervision, where self-discipline markedly declines. In terms of learning methodologies and cognitive strategies, substantial time investment by some students yields disproportionately limited outcomes, indicating suboptimal learning approaches. Common inefficient practices include mechanical repetition exercises, superficial reading engagement, and neglect of reflective summarization, and these maladaptive strategies significantly compromise learning efficacy.

5. Implications and suggestions

5.1. Construct a multi-dimensional evaluation and incentive system to boost motivation

Establish a comprehensive evaluation system incorporating both process and outcome assessments. Integrate

online learning performance—such as learning duration, task completion rates, learning quality, and interaction participation—into course evaluations, moving beyond the traditional reliance on final exam scores. This approach provides a more holistic and objective reflection of students' learning processes and efforts. Implement phased reward mechanisms, offering points, badges, or course bonuses for achieving phased learning goals to motivate students. Showcase exemplary learning cases, such as sharing high achievers' notes, plans, and insights, to inspire others and foster a positive learning atmosphere. This design draws on formative assessment theory, using timely feedback and incentives to help students establish clear learning paths and directions.

5.2. Strengthen learning method guidance to enhance competence

Teachers should prioritize teaching effective learning strategies through online workshops, guides, and lectures. For example, in deep reading, instruct students on identifying main ideas, analyzing paragraph structures, and understanding complex sentences. For vocabulary retention, introduce methods like root-affix analysis, contextual memorization, and associative techniques. For autonomous planning, guide students in setting realistic goals, allocating time, and organizing tasks. Such guidance can mitigate inefficient behaviors like rote repetition and shallow reading, enabling students to apply scientific strategies for better outcomes.

5.3. Leverage platform features to optimize learning experiences

Teachers should explore platform functionalities to support learning. Use data analytics and algorithms to personalize learning paths based on students' proficiency, progress, preferences, and weaknesses, ensuring appropriate challenges for continuous improvement. Display learning progress, completion rates, and goal gaps visually through charts and progress bars to enhance self-monitoring. Provide immediate feedback on exercises or tests, including answers and explanations, and analyze errors to identify weak areas for targeted review. Additionally, create online learning communities for students to exchange insights, share resources, discuss challenges, and collaborate on tasks.

5.4. Adopt blended teaching models for complementary advantages

Combine online autonomous learning with offline classroom instruction in a blended model. Online components focus on foundational skills like vocabulary and grammar, as well as extensive reading, offering abundant resources and flexibility. Offline sessions emphasize discussions, allowing students to share experiences and address challenges, with teachers providing in-depth guidance on common issues. Face-to-face interactions compensate for the lack of emotional and social engagement in purely online environments, enabling teachers to better understand student progress and offer support.

5.5. Optimize instructional design to empower teacher facilitation

At the instructional design level, learning tasks should be structured along a continuum from simple to complex and from foundational to advanced, ensuring students at varying proficiency levels receive appropriate challenges that foster gradual skill development. As facilitators of learning, educators should adopt a scaffolded support approach: when learners encounter difficulties, teachers provide calibrated assistance through strategic prompts, guided questioning, and modeling of problem-solving techniques. This support system follows a diminishing trajectory—as students demonstrate growing competence, instructional scaffolds are systematically faded to promote independent task completion. This pedagogical balancing act achieves optimal equilibrium

between learner autonomy and necessary guidance, thereby maximizing both the teacher's mentoring role and students' agency in the learning process.

6. Conclusion

By analyzing learning data from the Lighthouse Reading" platform and integrating theoretical and empirical insights, this study elucidates the current status of college students' online autonomous learning in English, deepening understanding of this phenomenon. The findings reveal significant individual differences in online learning behaviors, where outcomes depend not only on time investment but also on learning strategies and self-management abilities. These differences essentially reflect variations in learners' self-regulation and cognitive strategy application.

Future teaching reforms should focus on enhancing student motivation, fostering autonomous and metacognitive abilities, and optimizing platform functionalities and learning environment design. While preserving the flexibility of online learning, the social nature of language learning must be considered by increasing interactivity and support, such as strengthening learning communities, to fully realize the potential of online learning.

Disclosure statement

The author declares no conflict of interest.

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