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Collaborative Construction of a College English Digital Resource Library Based on a Smart Learning Community

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Abstract: The proliferation of digital English learning resources has raised growing concern about their ineffective aid, a problem rooted in the poor alignment between library resources and learners' demand. This study proposes the approach of collaborative construction based on a smart learning community to solve this problem. Usage feedback shows that, by using the co-built digital learning resource library, students exhibit positive changes in motivation, access frequency, learning experience, and learning outcomes, demonstrating that the self-built library has significantly enhanced resource suitability. The collaborative construction of a resource library based on a smart learning community serves as an empirical reference for resource development and optimization in the digital era.

Keywords: Collaborative construction; Smart learning community; Digital learning resource library; College English

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1. Introduction

The *2025 Guidelines on Accelerating Educational Digitalization* envisions a high-quality ecosystem for the supply of resources, marking a strategic shift from amassing volume to optimizing quality [1]. College English—a compulsory course taken by every undergraduate—offers an ideal testbed for large-scale development. During the recent twenty-five years, digital learning resources have multiplied from early websites through MOOCs to today's AI-enhanced platforms, greatly improving the effectiveness of English learning. However, at present, the development and application of digital learning resources vary greatly in quality and effectiveness [2]. Liu said that 40 % of his students found themselves drowning in online learning materials and had to sift by themselves [3]. Song reported that 22.5% of the students felt overwhelmed by the vast number of digital resources and struggled to select appropriate learning content [4]. Ma *et al.* pointed out "quantity without quality, no sustained curation, and poor uptake" [5]. Redundant building, fragmentation, weak fit to learner need, choice overload, and low utilization all trace back to a top-down construction model

that treats teachers and students as mere consumers. Smart technologies and learner-centered pedagogies now make it possible to reposition them as co-creators. Mobilizing staff and student agency in resource design can therefore solve the current impasse, boost teaching effectiveness, and help meet the state's new quality-first agenda in a bottom-up path. This study pilots a smart-learning-community model for college English learning resources as a practical route to genuine share-and-co-build governance.

2. The advantages of a smart-learning-community framework

Learning community is characterized by knowledge construction and meaning negotiation, emphasizing interpersonal psychological compatibility and communication, and group dynamics in learning [6]. As an instructional model centered on collaboration and co-creation, it has proven to be effective and versatile in different environments and for various purposes. In recent networked scenarios, in particular, its advantages have been noted by scholars, such as to provide information support and develop a sense of belonging [7], deepen understanding and application [8], boost motivation [9], spark interest, increase resource interaction, and improve language proficiency [10], and promote in-depth learning [11].

A smart learning community is the next evolutionary stage: the original social design is now fused with big data analytics, AI, and smart sharing platforms. Intelligent technologies dissolve space–time barriers, integrate multi-agent data, and streamline cooperation, amplifying the community's "co-build & co-share" power. Resources can be matched to precise pedagogical needs and circulate far more efficiently. Therefore, three affordances stand out. First, collaborative creation—every member is mobilized to produce, curate and integrate materials. Second, personalized adaptation—learning analytics surface individual gaps and push differential resources in real time. Third, dynamic iteration—content evolves continuously with the teaching cycle, eliminating the staleness typical of static libraries. By tackling fragmentation, raising teacher–student involvement, closing the demand–supply gap, and instituting sustainable update mechanisms, a smart-learning-community approach propels resource development from "quantity accumulation" to "quality optimization."

3. Collaborative building of digital learning resource library based on a smart learning community

A small digital resource library is built in a smart learning community (a college English class of 65 students) on the campus-based Superstar Fanya platform. Leveraging the community's built-in collaboration tools and guided by the five design principles, the library was built in the following three steps.

3.1. Community-based needs analysis and the structured resource framework

Teachers first reviewed the *College English Teaching Guidelines (2020)* to set the direction: all materials should be intended to improve language skills, cultivate values, broaden global vision, develop cross-cultural competence and support students' future professional growth. Students then were organized to discuss and share what English learning meant beyond passing exams, so that they themselves identified personal purposes, reflected on real gaps and became willing co-designers. A short questionnaire then captured concrete resource wishes. Finally, the team benchmarked the WeLearn teacher-repository and produced an improved, community-owned architecture with five top-level folders (**Figure 1**).

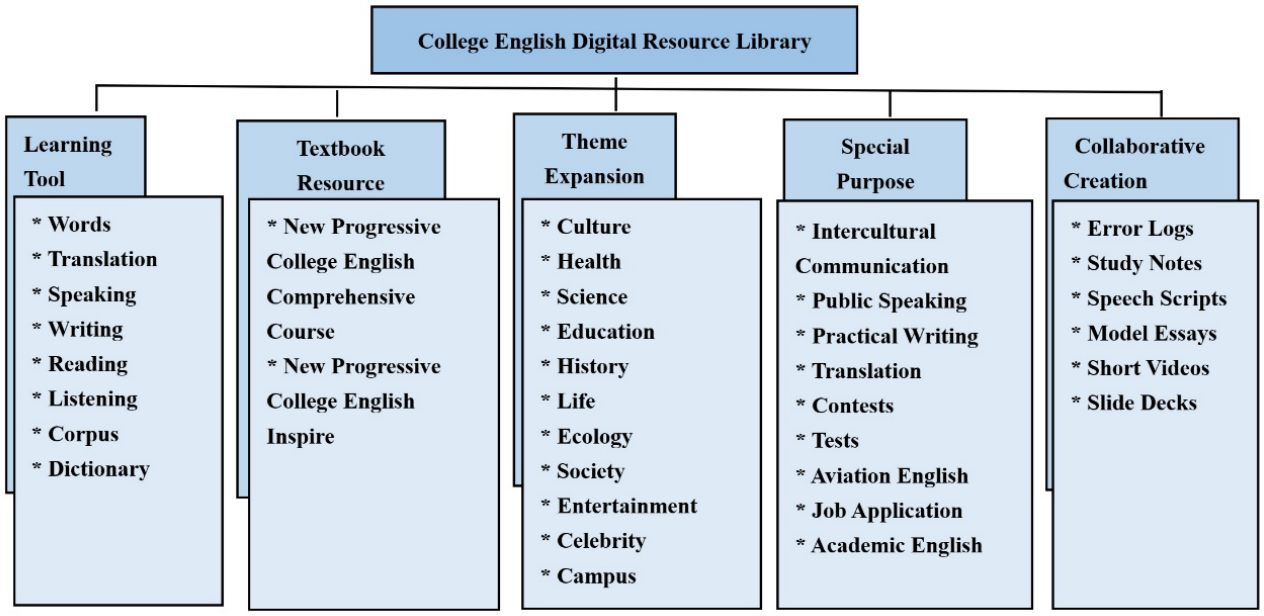

Figure 1. College English digital resource library framework

Learning tool: Smart tools like apps, software to help vocabulary learning, and train practical skills.

Textbook resource: Materials like translations of articles, exercises, and key difficult points to facilitate self-learning.

Theme expansion: Resources in various themes (culture, health, etc.) from credible sources (TV programs, online blogs, etc.) to cater to the interests of students and support learning tasks.

Special purpose: Resources about tips for special skills, practice, news, or updates for important tests, competitions, etc., to assist those preparing for tests, competitions, and career planning preparations.

Collaborative creation: an exhibition space for student outputs such as study notes, model essays, short videos, etc., to promote experience exchange and interaction, and offer referential data for teaching and research as well.

3.2. Community-driven curation and AI-augmented authoring on the smart platform

Following the five-category framework, we created matching folders under the "Resources" tab of our self-built College-English course on the campus SuperStar Fanya platform. Teachers uploaded core materials—textbook slides, micro-lectures, curated readings, audio–video clips, and targeted exercises—while students classified, tagged, and enriched them with everyday tools, favorite video channels, study notes, assignments, and project artefacts. These learner-generated artefacts became the library's most personalized layer. To keep the collection navigable, we ran lightweight NLP tagging and knowledge-graph linking so that every note, essay, or video was automatically mapped to the relevant skill node (e.g., "argumentative-thesis," "linking-words," "aeronautical-vocabulary"). The resulting analytics dashboard revealed high-frequency error patterns and knowledge gaps; teachers then fed the signals into generative AI and rapid multimedia tools to produce just-in-time micro-lectures, mini-drills, and remedial quizzes. The loop turned raw student output into continually refined, highly targeted resources, completing the shift from "teacher-provides" to "community-co-creates."

3.3. Community co-governance: A built-in engine for continuous refinement

The community established a "teacher-student co-governance" guarantee mechanism, allowing community members to participate in resource quality control and updates throughout the process to ensure that the resource library serves the long-term development of the community.

First, "community sharing incentive rules" were formulated to encourage members to actively contribute resources. If learning notes, mind maps, learning tools (such as word-memorizing and translation app recommendations) uploaded by individual students or groups are clicked, used, or highly evaluated by other community members, they can obtain "community sharing points." Points can be exchanged for personal rewards, such as exemption from learning tasks and oral English exams. At the same time, the points are converted into personal usual grades and group collaboration grades in a certain proportion, strengthening the community's learning culture of "mutual assistance and sharing."

Meanwhile, clear resource review standards were formulated to ensure resource quality and adaptability, covering aspects such as the authority of information sources, language accuracy, teaching applicability, and adaptability to collaborative scenarios. An "evaluation group" was set up, with student representatives conducting preliminary resource evaluations according to the standards to determine whether the resources are suitable for group learning. Teachers are responsible for the final review and quality control, forming a community quality control model of "preliminary evaluation by students + final review by teachers."

Finally, resource usage feedback and update rules were set up to maintain the vitality of the resource library. After each unit, learning problems were sorted out based on learning situation data and questionnaires. After the midterm and final exams, discussions and analyses were conducted in the community to supplement and replace resources, ensuring the library is never a static archive but a living, self-correcting ecosystem.

4. Investigation and analysis of library usage

After a semester of improvement and utilization, the self-built resource library saw some positive changes. A questionnaire survey was conducted to compare resource usage before and after the library's establishment.

Learning motivation: More students showed initiative in library usage. After adopting the self-built library, 83% of students thought they used the resource library due to "interest/needs," an increase of 65% in the proportion of active motivation compared with before, changing the situation where students only acted when pushed by teachers (**Figure 2-1**).

Usage frequency: Students used the resources more often than before. After the construction of the self-built library, 57% of students used it four times or more per week, an increase of 52% compared with before. Students used to spend time on English just before or right after English class, twice per week on average, while now their actual usage time generally extends, indicating an improvement in the initiative of use (**Figure 2-2**).

Figure 2. Usage of self-built digital resource library

Usage experience: More students acknowledged the value of the resource library. After the adoption, 74% of students believed that the resources "matched their needs," an increase of 69% compared with before, and the problems of "unable to find desired content" and "no idea about where to find materials" were basically solved (**Figure 2-4**). Some students said: "The writing models found online are usually not ideal, but the writing models and skills in the resource library are very satisfactory and practical." "Every time the teacher assigns a theme task, our group will look for materials in the resource library, which is very convenient." Meanwhile, 60% of students took the initiative to recommend and share resources, reflecting a strong sense of belonging (**Figure 2-6**). Here are some ideas. "When I see useful or interesting materials, I want to share them with my classmates." "Sometimes when I want to check something I have seen before, I can find it in the resource library; it is specially stored there, making it easier to find." These changes are consistent with the original intention of building the resource library, i.e. to develop students' ability to actively discover resources and promote communication through sharing.

Usage effect: More students thought the resources were helpful. By making use of the new library resources, 67% of students believed that they "helped improve their abilities" (**Figure 2-5**). 55% of students reported a "significant increase in learning interest," realizing a positive cycle of "resource usage–interest

expansion–ability improvement" (**Figure 2-3**).

5. Conclusion

The self-built resource library can more accurately target needs, improve resource utilization efficiency, and address the current problems of "technology-centeredness" and "supply-demand mismatch" in digital resource construction. The collaborative building gives full play to the interaction advantage of a smart learning community, making members the leading force and practical beneficiaries of resource construction. This enables the resource library to continuously optimize and update, maintain vitality, and effectively support the development of the community. Practice has initially verified the effectiveness of the construction and utilization methods of the library. However, resource construction and utilization are complementary, with a continuous interactive relationship. Therefore, on the one hand, it is necessary to further the study on how to use smart technologies to improve the present structure and utilization of adaptive resources, and collaborate with technical experts to offer more operational convenience and easier access for users' engagement in resource construction and utilization. On the other hand, a broader range of statistics is needed to refine the data analysis on the correlation between resource usage and ability development so as to summarize long-term operation mechanisms, and promote the methods and experiences to larger-scale community resource construction and utilization.

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Disclosure statement

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