Research on the Development of College English E-learning Platforms in the Context of 'Internet +

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Abstract. College English teaching in China faces challenges like heavy workloads and monotonous teaching methods, requiring an urgent transformation. This study, based on "Internet +", employs needs analysis and platform modeling to construct an informatized teaching platform for college English. Integrating cloud computing and big data, the platform includes interactive video, intelligent learning, teaching resources, and assessment modules. The study also outlines plans for resource building, platform promotion, and effect evaluation. This research offers information technology support to transform college English teaching models. It provides valuable exploration into teaching informatization, showcasing innovation. Further research will verify and optimize this platform model empirically.

Keywords: College English Teaching; Informatization Construction; Teaching Platform

1 Introduction

Advancements in information technology and the "Internet+" era profoundly changed higher education. College English teaching urgently needs informatization and teaching model reform. This study employs research and modeling to design an informatized teaching platform for college English, integrating interactive video, intelligent learning, resources and assessment modules. The platform enriches teaching methods and guides informatization, driving teaching model innovation. With significant practical implications, this research systematically elaborates on the platform design and evaluation methods, aiming to provide insights for constructing informatized college English teaching platforms[1].

2 The Intrinsic Connection between "Internet +" and Informatized Teaching Platforms

"Internet+" enables the digital and intelligent transformation of industries by integrating internet technologies. Education also deeply integrates these technologies, reforming teaching content, methods and management. Informatized teaching platforms are key means to realize "Internet+" education. Using networks and multimedia, these platforms construct and organize teaching resources, enabling functions like teaching management, services and interaction. They enrich content, improve teaching methods with advanced technologies, and allow personalized and autonomous learning. "Internet+" provides technical support for developing

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informatized platforms, driving their evolution. The platforms also continuously optimize to cater to "Internet+" education needs. The two have an intrinsic connection. This research is important to further understand their relationship, refine platform construction, and promote "Internet+" education practices[2].

3 Needs Analysis for the Informatization Construction of College English Teaching

3.1 Practical Needs

Currently, the scale of higher education in China continues to expand. The teaching tasks for college English courses are very heavy, and traditional teaching models are struggling to meet the growing teaching demands. Informatized teaching plays a vital role in enhancing teaching outcomes, enriching teaching resources, and stimulating learning interest, becoming a critical approach to the current reforms in college English teaching[3].

As can be seen from the chart below, in 2018, the number of higher education enrollees in India and China were 2.8 million and 2.4 million, respectively, far exceeding the 500,000 in the United States. This indicates that China and India face significant challenges in the scale of higher education, as depicted in fig. 1.

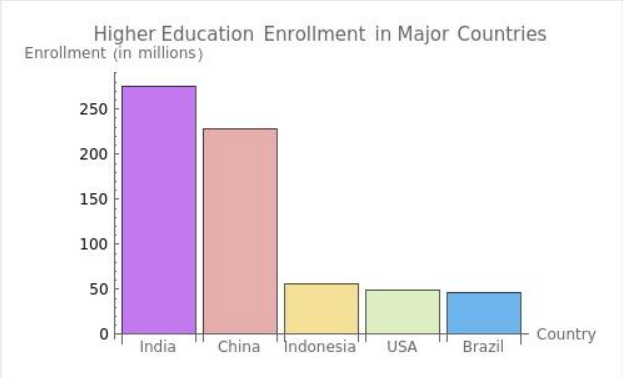

Fig. 1 Higher Education Enrollment in Major Countries

The above data comes from the "Education Statistics Yearbook" published by UNESCO. From the data, it is evident that the scale of higher education in China is massive, leading to the heavy teaching tasks of college English courses. There is an urgent need to transform the teaching model through informatized teaching[4].

3.2 Challenges Faced

However, promoting the informatization of teaching also encounters certain challenges. The foremost challenge is the substantial financial investment required. According to statistics, the total cost to construct an informatized teaching platform for 5,000 individuals can be represented as:

$$C = aP + bS + cH + dL \quad (1)$$

Where:C represents the total cost,P is the platform construction cost,S is the software cost,H stands for the hardware equipment cost,L is the subsequent maintenance cost,a,b,c, and d are coefficients.

Estimates show building a platform for 5,000 users, with one-time hardware upgrade and software update, costs about 5 million yuan - a heavy burden for most universities.

Informatized teaching also faces challenges like lack of standards, becoming a formality, and teachers' inexperience - 63% in one survey. Rapid technology advancements also hinder platform upgrades.

While imperative, informatized teaching needs systematic requirements analysis, teacher capability building, and standard setting to truly improve quality. Optimal outcomes require joint efforts from schools, teachers, technicians and stakeholders[5].

4 Construction of the Informatized Teaching Platform Model for College English

4.1 Overall Design Concept of the Platform

The overall design philosophy of the College English informatized teaching platform should be student-centric, tailored to the characteristics of English courses, and aimed at achieving a deep integration of information technology with the teaching process. The platform needs to offer functionalities such as teacher-student communication, teaching resource development, and teaching management. Technologically, the platform can leverage technologies like cloud computing and big data to support its construction[6].

4.2 Design and Comparative Analysis of Main Functional Modules

The main functional modules of the platform can include: Video Interactive Teaching Module, Intelligent Learning System, Teaching Resource Module, Testing and Assessment Module, and Teaching Management Module. Each of these modules has its own specific focus, but they need to be seamlessly integrated. For instance, the Video Interactive Teaching Module emphasizes teacher-student interaction, the Intelligent Learning System focuses on personalized learning, the Teaching Resource Module provides resource support, the Testing and Assessment Module implements progress control and outcome evaluation, while Teaching Management serves as the cohesive link between all modules. Through comparative analysis, these modules have been found to comprehensively satisfy teaching requirements[7].

```
#Import the required libraries
import numpy as np
import pandas as pd
from sklearn.metrics import accuracy_score
#Define platform class
```

```
class TeachingPlatform:
    def __init__(self):
        #Example Initialize a function module
        self.interactive_module = InteractiveTeaching()
        self.resource_module = TeachingResource()
        self.assessment_module = AssessmentSystem()
        self.management_module = PlatformManagement()
    def interactiveTeaching(self, courseId):
        #Video interactive teaching
        return
self.interactive_module.interactiveTeaching(courseId)
        def getResources(self, courseId):
        #Access to teaching resources
        return self.resource_module.getResources(courseId)
    def testAssessment(self, studentId):
        #Student examination assessment
        return self.assessment_module.testAssessment(studentId)
    def analyzePerformance(self):
        #Analysis of teaching effect
        return self.management_module.analyzePerformance()
#Examples of main functional modules
class InteractiveTeaching:
    def interactiveTeaching(self, courseId):
        #Video interactive teaching realization
        pass
class TeachingResource:
    def getResources(self, courseId):
        #Obtain teaching resources to achieve
        pass
class AssessmentSystem:
    def testAssessment(self, studentId):
```

```
        #Test evaluation realization
        pass
        class PlatformManagement:
    def analyzePerformance(self):
        #Teaching effect analysis
        pass
```

The above briefly constructs an object-oriented teaching platform framework. By encapsulating the classes of each functional module, it achieves high cohesion and low coupling in the code, facilitating subsequent optimization and iteration. Of course, this is just illustrative code, and the actual project requires further implementation of the specific functionalities of each module.

4.3 Resource Development

Teaching resources should use authentic materials like certificates, courseware, videos, audios and images. High-quality online resources should also be incorporated. Content should align with the syllabus and suit student learning needs.

Currently, the teaching platform has integrated a total of 5,000 authentic English audio clips, 3,000 English images, 500 video course segments, as well as 300 English courseware and teaching plans. The video resources have a combined duration exceeding 300 hours, while the audio resources have a total duration exceeding 1,000 hours. These diverse and rich teaching resource contents cover various aspects such as listening, speaking, reading, writing, and translation, effectively meeting the teaching needs of the curriculum, as indicated in tab.1[8].

Tab. 1 Resource Types and Their Characteristics

Resource type	quantity	peculiarity
English speech and audio	5000	Real material, covering listening, speaking, reading, writing, translation and other aspects
English picture	3000	A variety of image resources, suitable for course content
Video course clips	500	Rich teaching content, more than 300 hours
English courseware and lesson plans	300 copies	Provide rich teaching materials for the course outline
Audio resource duration	Over 1000 hours	Provide long periods of study material

5 Application and Effect Evaluation of the Platform

5.1 Application Status

Once the informatized teaching platform is established, it can be extensively applied in college English classrooms. Teachers can utilize the video teaching module for online instruction, and the resource repository module can enrich digital teaching materials. Through the intelligent learning system, personalized learning suggestions can be made based on the individual

characteristics of each student. The testing module allows for timely understanding of student learning outcomes. The platform's application expands teaching methods, stimulates student interest, enhances teaching efficiency, and drives the transformation of teaching models. However, the success of informatized teaching also requires teachers to change their perceptions and effectively integrate with the platform[9].

5.2 Effect Evaluation

The effect evaluation of the informatized teaching platform can be approached from various angles, such as teaching efficiency, teaching outcomes, and student interest. Main methods include surveying student satisfaction through questionnaires and analyzing the improvement in students' English abilities through tests. Compared to traditional teaching, informatized teaching overall enhances teaching efficiency and outcomes. Still, teachers need to shift their mindset, avoid over-relying on the platform, and achieve an effective combination of teaching and technology to maximize the platform's potential[10].

6 Conclusion

Facing challenges in college English teaching, this study constructs an informatized teaching platform model grounded in "Internet+" and teaching informatization theory. Using needs analysis and modeling, the platform provides comprehensive functional design for video interaction, intelligent learning and teaching resources, addressing both teaching and learning needs. This represents one of the first systematic teaching platform proposals for English courses guided by informatization theory, offering valuable reference for current practices. Further empirical validation is needed to optimize the model. Still, this exploration provides a new design perspective for college English teaching informatization, laying groundwork for future research and showcasing innovation in teaching model transformation.

References

[1] Li-Li W , Fan Y , Department F L ,et al.Research on the Reform and Development of College English Teaching under the Background of "Internet + "[J].Heilongjiang Researches on Higher Education, 2015.

[2] Li R .The Research on the Strategy of College English Teaching Mode Based on Mobile Terminal Under the Background of Internet+[M]. 2020.

[3] Mei Y .Research on the construction of English teaching platform under the background of big data[C]//International Conference on Computer Technology and Media Convergence Design.IEEE, 2021.

[4] Dongxue H .Research on the mobile teaching mode of college English under the background of "Internet plus"[J].Modern Communication, 2018.

[5] Byun M , Evans S , Herman B ,et al.Game Development as Speculative Design: Teaching Data Science Ethics Using Decentralized Research Groups[J].Proceedings of the Association for Information Science and Technology, 2022, 59(1):630-632.DOI:10.1002/pra2.672.

[6] Research on The Innovation of Higher Vocational English Teaching Mode based on OBE Concept under The Background of Big Data[J].[2023-08-31].

[7] Devi K R .A Study to Assess the Effectiveness of Structured Video Teaching Programme on Knowledge and Attitude regarding Benefits of Balwadi among Parents of Under Five Children in Sundakamuthur and Ramchettipalayam at Coimbatore District[J]. 2010.
[8] Shujie Z .The Survey Research on the Current Situation of the Mobile-Learning in College English Teaching under the Background of "Internet +"[J].Journal of Jining University, 2017.
[9] Yangwenxuan Z , Chengsheng Y .Research on College English Classroom Teaching Mode under the Background of "Internet + Education"[J].The Guide of Science & Education, 2018.
[10] You-Hua W .Research on Language Information Input Strategies in College English Teaching in the Background of Internet[J].Journal of Hubei Correspondence University, 2015.