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Constructing an Efficient Teaching Model for Higher Vocational English in Smart Classrooms

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Abstract: Smart classroom is a new classroom form constructed by the deep integration of information technology and education, and is an important way to solve the problem of low efficiency in higher vocational English teaching. This paper analyzes the reasons for low efficiency in current higher vocational English teaching from three aspects: insufficient learning motivation caused by "subject dislocation", discretization of learning resources caused by "information island", and failure to fully reflect learning effects due to "result-oriented evaluation". From the perspective of a smart classroom, it puts forward reform strategies including resource integration and precise push based on a knowledge graph, a collaborative interaction mechanism of "teacher-student-smart platform" based on the BOPPPS model, and personalized tutoring through data tracking, so as to build an efficient teaching paradigm for higher vocational English and provide a theoretical framework and practical roadmap for the digital transformation of higher education.

Keywords: Smart classroom; Higher vocational English; Efficient teaching mode; BOPPPS model; Personalized learning

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1. Introduction

With the continuous advancement of the educational informatization 2.0 era, the smart classroom has become an important part of the digital reform of higher education. Supported by big data, artificial intelligence, virtual reality and other technologies, the smart classroom takes data as the core driver to build an open, independent and personalized teaching environment, so as to achieve the goal of precise teaching. In higher vocational English teaching, the efficient reform not only needs to upgrade teaching tools, but also requires systematic reconstruction from teaching concepts, teaching modes and evaluation systems. In view of the current situation of higher vocational English teaching practice, teachers should re-examine the fundamental problems, such as "new equipment but old concepts" and "more technologies but shallow integration", to explore strategies and methods for constructing an efficient teaching mode for higher vocational English from the perspective of the smart classroom.

2. Analysis of reasons for low efficiency in higher vocational English teaching

2.1. Teaching concept: Insufficient learning motivation caused by "subject dislocation"

In traditional English teaching, most teachers have formed the entrenched mindset of being "teacher-centered", leading to students being in a passive state in the learning process, resulting in the problem of "subject dislocation". There are three reasons for this problem: First, teaching design oriented by knowledge instilling ignores the development of students' language application ability. Teachers only transfer textbook content to the screen without establishing real and effective language interaction. Second, the "one-size-fits-all" teaching method lacks differentiated teaching design thinking. Higher vocational colleges have diverse and complex students with great differences in English levels [1]. Traditional teaching methods lack pertinence and differentiated design, making it difficult for students with weak foundations to keep up and boring for students with good foundations, thus reducing efficiency. Third, in the application of information technology, "emphasizing tools over concepts" treats the smart classroom as multimedia equipment without tapping its data-driven function or reconstructing the teaching process around students [2], resulting in lack of internal motivation for students.

2.2. Resource allocation: Discretization of learning resources caused by "information island"

Reasonable allocation and optimal integration of teaching resources are important factors affecting students' learning effects. At present, there is often an "information island" in resource allocation in higher vocational English teaching.

First, resources are scattered and disconnected. Videos, courseware, cases, exercises and other resources related to the course are scattered on different platforms or systems, and students have to switch between multiple platforms for learning and use, interrupting the continuity of learning.

Second, resources are disconnected from course content. Some teachers fail to scientifically select and systematically integrate online resources, resulting in messy and unthematic resource information, which is difficult to guide students to complete special learning tasks of the current module [3].

Third, resource update is slow and difficult to adapt to the dynamic adjustment of talent training objectives. Traditional resource construction is mainly led by individual teachers based on personal experience, textbook content and existing accumulation. On the one hand, some teachers use courseware, cases and exercise materials made many years ago, whose industry background, technical terms and communication scenarios may be outdated. On the other hand, resource construction lacks a sensitive response to student feedback, evolution of learning objectives and changes of the times. Course objectives iterate with industry development, but supporting resources fail to upgrade synchronously.

Fourth, high-quality resources lack a sharing mechanism, and teachers fail to share excellent resources on time.

2.3. Evaluation mechanism: Failure to reflect the whole learning process due to "result-oriented"

Evaluation serves to provide feedback on teaching effects and guiding learning direction, but the current higher vocational English teaching evaluation mechanism has limitations.

First, the evaluation content is simplistic. Most teachers take final written examination results as the core assessment basis, focusing on students' mastery of vocabulary and grammar, but ignoring their listening,

speaking, communication and workplace language application abilities.

Second, process evaluation is a mere formality. Teachers fail to systematically record and scientifically evaluate students' classroom performance, team cooperation, project practice and other process performances, making process evaluation rely more on teachers' subjective impressions [4].

Third, the evaluation subject is simplistic. Usually, only teachers participate in evaluation, and multiple subjects such as student self-evaluation, peer evaluation and enterprise evaluation have not been established.

Fourth, evaluation feedback is lagging. Teachers fail to give timely guidance and suggestions according to students' evaluation results, and cannot exert the teaching adjustment function of evaluation activities.

3. Strategies for constructing an efficient teaching mode of higher vocational English from the perspective of smart classroom

3.1. Before class: Integrate resources with knowledge graph and precisely position with data portrait

Accurately grasping the learning situation and systematically organizing content are the starting points to achieve efficient teaching. In the smart classroom environment, teachers should rely on a knowledge graph to complete systematic integration of teaching resources and map students' characteristics accurately before class.

First, construct a course knowledge graph and build resource connection nodes. Teachers should systematically sort out course content, classify and integrate knowledge points according to unit structure, and coordinate multiple resources such as teaching videos, courseware, cases and exercises on this basis to establish a clear knowledge pedigree. For example, in tourism major English teaching, teachers can divide unit courses into modules such as "scenic spot explanation", "hotel reservation," and "emergency handling", and then establish supporting micro-videos, situational dialogues, simulation exercises and other resources to support students' independent learning [5].

Second, collect data based on an intelligent platform and generate a learning situation portrait. Teachers should use large models to analyze students' interest preferences, knowledge weaknesses and learning habits based on information such as video viewing duration, self-test scores and discussion forum records recorded by the smart teaching platform, and then establish a learning situation portrait to specifically analyze students' personalized problems and common class problems.

Third, push preview tasks differentially and develop personalized learning plans. Based on the learning situation portrait, teachers should use a smart platform to provide differentiated teaching services and task lists [6]. For example, for students with weak foundations, task resources should focus on mastering core vocabulary and basic sentence patterns; for students with good foundations, workplace situational dialogues and cultural background knowledge can be pushed, so as to achieve the effect of "one policy for one person" resource push.

3.2. During class: Driven by the BOPPPS model with multi-dimensional interaction for synergistic efficiency

The in-class stage is the central link to achieving efficient teaching. Under the background of smart classroom construction, teachers should build the BOPPPS model, create an open and independent learning framework through six links of "Bridge-in-Objective-Pre-assessment-Participatory Learning-Post-assessment-Summary",

and leverage data to empower instruction and ensure precision.

(1) Bridge-in. This link aims to stimulate interest. Teachers can quickly attract students' attention through videos, cases, questions and other ways, such as playing professional scene dialogues, such as airport security check, hotel check-in and business negotiation.

(2) Objective. This link aims to guide students to clarify course learning objectives. Teachers can provide differentiated objective planning for students of different majors based on learning situation diagnosis. For example, when learning tense grammar, for the childcare service major, teachers can set the goal of "being able to describe children's daily activities in English"; for the tourism major, the goal can be set as "introducing scenic spot history in English" [7].

(3) Pre-assessment. This link is intended to test students' preview results. Teachers can assign preview tasks and analyze the gap between students' prior knowledge and teaching objectives based on visual data results.

(4) Participatory Learning. This link is the core of the BOPPPS model. Teachers should take the "student-oriented" concept as the center. Teachers can implement heterogeneous grouping teaching, task-driven teaching, project-based teaching and other teaching methods with the help of a smart teaching platform. In practice, teachers should first exert the auxiliary function of AI learning partner to provide real-time tutoring for students; second, rely on data feedback to grasp group learning progress in real time and prepare for intervention guidance; third, rely on generative artificial intelligence to create cross-cultural communication situational dialogue projects, such as simulating multiple scenarios such as traditional Chinese medicine consultation and business negotiation [8], to highlight workplace situations and cultural differences and train students' communication ability.

(5) Post-assessment. This link is mainly used to test students' learning results after class. Teachers can push after-class practice tasks through the platform, and use an intelligent system to automatically correct objective questions and generate score reports and analysis charts to provide a basis for teachers' follow-up tutoring.

(6) Summary. This link is used to summarize the problems and achievements in the teaching process of this class. Teachers can use tools such as Deepseek and Boardmix to generate knowledge mind maps to help students understand the internal connection between knowledge points and create application examples in professional scenarios.

3.3. After class: Personalized tutoring with data tracking and a precise push for consolidation and expansion

The after-class stage can not only extend the teaching content of classroom learning in an orderly manner, but also deepen students' cognitive achievements and knowledge understanding. In a smart classroom, teachers should reconstruct the after-class tutoring process, move beyond the linear mechanism of "assigning homework-collecting homework-correcting homework", and provide closed-loop services and precise support based on data tracking feedback.

First, accurately grasp learning dynamics based on platform visual analysis. Teachers should rely on a smart platform to analyze data such as completion time, accuracy and error distribution of students' after-class exercises, to generate personalized learning feedback and reports, identify students' knowledge weaknesses and difficulties, and optimize subsequent teaching plans.

Second, push consolidation resources personalized to realize adaptive learning. Based on learning data

analysis, teachers should use a smart teaching platform to push differentiated consolidation and practice resources for students. For example, for students who do not firmly grasp knowledge points, micro-lectures and targeted exercises on basic contents such as English vocabulary, grammar and sentence patterns can be pushed; for students with spare capacity, teachers can push interesting expanded reading materials or provide real workplace cases in line with their future employment directions [9]. For example, in English writing training, teachers can analyze the thinking changes in students' writing according to their revision traces, writing records and results, and then establish learning files to intuitively show their writing advantages and disadvantages.

Third, strengthen practice through a virtual-real combination to promote knowledge transfer and application. Teachers should design practical tasks in the after-class stage to focus on cultivating students' learning transfer ability. Supported by a smart classroom, teachers can give priority to providing a virtual training environment to consolidate students' theoretical knowledge and skills, and then organize practical exercises in a real or simulated workplace environment. For example, after the completion of tourism major English courses, teachers can build a virtual scenic spot system to provide students with a practice environment, and assess the pronunciation, intonation and content accuracy in real time through the system[10]; then in the on-campus training base, teachers can carry out simulated group-leading activities; finally, return to the virtual system to strengthen training for students' deficiencies.

4. Conclusion

In summary, a smart classroom can not only provide concepts, tools and paths for the reform of higher vocational English teaching, but also significantly improve its teaching efficiency and quality. Faced with the inefficient dilemmas such as "subject dislocation", "information island" and "single evaluation" in current teaching, teachers can rely on smart classroom to build a systematic teaching paradigm of data-driven precise teaching and technology-enabled personalized learning, and then create a trinity teaching reform plan of "resource integration with knowledge graph before class - BOPPPS collaboration during class - data tracking and tutoring after class", to cover the whole teaching process and achieve the educational goal of returning to "student-centered". Future research should further pay attention to teachers' professional development and deeply explore the new mode of "artificial intelligence + teacher" collaborative teaching, to promote smart classrooms from "technology empowerment" to "ecological reconstruction" and provide solid support for cultivating high-quality technical and skilled talents with a solid English foundation and strong practical ability.

Disclosure statement

The author declares no conflict of interest.

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