The Research on Blended Teaching in Vocational Colleges Based on Smart Campus

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Abstract. Blended teaching is an "online" + "offline" teaching that combines the advantages of online teaching and traditional teaching. Through the organic combination of the two forms of teaching organization, learners' learning can be guided from shallow level to deep level to deepen the understanding of learning. Teachers no longer occupy students' learning time in the classroom, and they can promote the development of their individualized learning, and let students acquire more learning knowledge or allow students to learn independently in their spare time. This article is to mainly analyze the application of blended teaching in vocational Colleges under the background of smart campus.

Keywords: Blended class, English teaching, Smart campus.

1. Introduction
Distant education, online learning, and face-to-face education have a close relationship among each other. Online learning is a form of distant education. While online learning relies much on online courses, among which there has been the branches of MOOCs (Massive Online Open Course) and SPOCs (Small Private Online Course). Blended learning came into being by combining online learning and face-to-face education. And flipped class is the main form of blended learning [1]. From blended learning, researchers found it is very necessary to explore and focus on the blended teaching. Especially in vocational schools, blended teaching is an efficient way to encourage students to acquire knowledge and skills. As shown in “Fig. 1”, you will have a clear understanding of blended teaching.
1.1. The goals and needs of the supporting environment for blended teaching

In vocational education, the aim is to train and develop skill for technology students in different occupations. The teaching design is about working process in classrooms, training rooms, or factories workshop. And the teaching methods are carried out by projects, tasks, and cases. The goals and needs of the supporting environment for blended teaching are as followings.

1) Personalized learning space.
   Focus on the learner and provide a better learning experience. Emphasize students’ independent learning and self-construction. Integrate formal learning and informal learning, support a variety of training raising mode.

2) Mixed teaching support environment
   Mixed curriculum design adapted to different teaching modes. Based on data analysis to help teachers provide students with more accurate and efficient learning support.

3) Integrated environment of mixed teaching management and evaluation
   Data-based teaching process management and comprehensive scientific diversified evaluation. Students' personalized training process support.

4) Platform integration
   Curriculum and resource sharing between schools. Business integration between various systems in the school, through teaching and management, teaching and resources, management and evaluation.

5) Fusion of virtual scenes and real working sites
   Make full use of the integration of mobile, AR/VR, Internet and other emerging technologies internship online learning environment and face-to-face learning environment.

6) Data Integration
   Aggregate data from different systems, build a comprehensive, comprehensive, and multi-dimensional teaching database and analysis tools to provide deeper data services.

Above all, the blended teaching needs hardware infrastructure, software infrastructure, public interface, logging in web page and unified identity authentication, and opening standard. It is able to support multiple teaching modes, a variety of teaching organization forms, and free learning in multiple teaching situations to better support to achieve the goal of blended teaching.

1.2. The multiple evaluation of blended teaching reform

The multiple evaluation of blended teaching reform is multi-layed, multi-dimensional, process-oriented, integrated, and based on big data source.
1) Evaluation dimension is focused on F2F teaching evaluation; online teaching evaluation; teaching affairs evaluation; activity course evaluation.

2) Evaluation objects are students, teachers, courses, majors, and school institutions.

3) Evaluation contents are teaching attitude, teaching behavior, self-efficacy, learning emotion, learning input, learning attitude, personal learning behavior, group learning behavior, learning result, online learning status monitoring, online teaching status monitoring, learning resource monitoring, and training process.

4) Thus, the blended teaching focuses on students' "self-learning", teachers' "intrinsic motivation", innovative "teaching mode", scientific empirical analysis, community cooperation, and normal teaching and original teaching ecology. And examples of evaluation content are shown in Fig.2.

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**Fig. 2 The multiple evaluation of blended teaching**

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2. The Construction of Smart Campus

The current vocational education model should be changed to student-centered. In the information age, relying on knowledge memory has no future, and we must shift from knowledge memory to knowledge application and creation. The key is to challenge students' intelligence and stir up students' thinking. Through challenges and stimulation, develop students' thinking potential and creativity.

The vocational college’s needs are fully controlled, starting from the most fundamental actual needs of the college, fully embodying the school’s characteristics, and solving the current problems facing informatization construction [2]. The overall plan for environmental transformation, relying on the current situation, making full use of existing resources to carry out overall planning and transformation to make it consistent with informatization construction requirements. System construction continues to develop, fully consider the docking mechanism with other information systems and future sustainable development plans, and build a smart campus environment. The construction of the "smart campus" platform needs overall planning and implementation in phases. The four parts of "smart campus" are shown in Fig.3.
Fig. 3 The construction of the "smart campus" platform

Precisely speaking, "smart campus" mainly refers to:
1) Environmental consulting and construction (platform business integration);
2) School affairs management platform construction (data integration service);
3) Online learning platform construction (mobile terminal teaching and learning, inter-school resource center, data integration service);
4) Smart classroom platform construction (smart classroom consulting, recording and broadcasting classroom management, smart space management, data integration services) [3].

Smart classroom is by no means a collection of the latest technology, software and hardware. The three elements of pedagogy, technology and space should be carefully considered and integrated to form a new classroom ecosystem [4]. Smart classroom contains equipment that allows teaching assistance, discussion, self-learning, and administration management happen.

(a) Teaching assistance---The integrated information desk and simple environment control allow teachers to operate various teaching and audio-visual equipment in the classroom without hindrance. Naturally, teachers will adopt more varied teaching methods and improve learning effectiveness. An example of information desk is show in Fig.4.

Fig. 4 The integrated information desk
(b) Interactive discussion---The learning space can easily switch between different modes, such as from teaching style to group cooperation style, to group presentation and discussion mode, and then back to teaching style [5]. As shown in Fig.5, it shows a clear scene of interactive discussion.

![Fig. 5 The discussion groups](image)

3) Self-learning---It can induce students to actively learn through mobile and remote methods before and after class.
4) Administration management---The recording classroom can record and play high image quality (up to 1080p) videos on computers and mobile phone. And the process of recording to playing is shown in Fig.6.

![Fig. 6 The discussion groups](image)

The smart classroom is an important achievement in the construction of a smart campus, which will completely subvert the imagination of students and parents of traditional classrooms [6]. In the application of smart campus, blended teaching can fully reflect the initiative, enthusiasm and creativity of students. We must pay more attention to the construction and implementation of a blended learning model based on smart campus in vocational college teaching, so as to truly take advantage of the blended learning model, fully explore the learning potential of students, help students build self-confidence, and improve themselves in continuous innovation.

**References**

[1] Chen Lingzhi, Research on Blended Learning Teaching Model Based on Flipped Classroom[J].Education Teaching Forum,2019(44):221-222.

[2] Cao Xiaoming, "Smart +" Campus: A New State of School Development in the Horizon of
Educational Information 2.0[J]. Journal of Distance Education, 2018, 36(04):57-68.

[3] Ding Jianying, Zhang Yuhan, Discussion on the construction of smart campus support platform based on big data[J]. China Educational Technology and Equipment, 2017(22):38-39.

[4] Liu Kai, Zhang Yuepeng, Building and thinking about a smart campus model based on Internet of Things technology: Taking Nanjing Forest Police Academy as an example[J]. Information and Communication, 2019(3):53-56.

[5] Liu Hui, Thinking on the information construction of smart campus[J]. China Information Technology Education, 2019(24):102. Krizhevsky A, Sutskever I, Hinton G E. ImageNet classification with deep convolutional neural networks[C]// Advances in neural information processing systems. 2012: 1097-1105.

[6] Zhu Xin, Research and Thinking on the Application and Construction of Smart Campus in Higher Vocational Colleges[J]. Journal of Software Guide (Educational Technology), 2019, 18(08):36-37. Redmon J, Divvala S, Girshick R, et al. You only look once: Unified, real-time object detection [C]// Proceedings of 2016 IEEE Conference on Computer Vision and Pattern Recognition. Las Vegas, USA: IEEE, 2016: 779-788.