



# Literature Review on the Exploration and Practice of Blended Teaching Models in the Post-epidemic Era

Tianjing Ren

Shanxi University, Taiyuan City, Shanxi Province, China, 030000· 0351

tinaren0219@163.com

**Abstract.** In the context of the normalization of the epidemic, the blended teaching model has become the new normal. This paper reviews the research results of the hybrid teaching model in universities in the post-epidemic era in recent years and summarizes the difficulties and obstacles that may be encountered in its implementation. Finally, this paper summarizes three paths for the future development of the hybrid teaching model, from the perspectives of teaching philosophy, teaching methods, and teaching evaluation. The outcomes of the aforementioned literature search also show certain issues. On the one hand, there is a lack of a more profound intention, which results in a superficial discussion and a lack of a systematic summary. On the other hand, the majority of researchers start from the background of the post-epidemic era to study the impact factors on blended teaching, but do not present the improvement strategies with universal value, which is ineffective.

**Keywords:** Blended Learning, Post-epidemic Era, Teaching Mode, Online Teaching.

## 1 Introduction

The purpose of thinking and exploring a hybrid teaching mode in the post-epidemic era is to explore a hybrid teaching mode that combines online and offline teaching and learning from the level of teaching concept, teaching methods, and teaching evaluation in the university in the context of the current epidemic that has a profound impact on the education field. At present, the research on hybrid teaching mode in the post-epidemic era has just started, and the scope of research is limited and the research results are not universally representative. In this paper, 379 academic journals were searched with the keyword “post-epidemic education” and 11,800 academic journals were searched with the keyword “blended teaching mode”. 48 papers on blended teaching mode in the post-epidemic era were selected according to the degree of relevance. The author reviewed them to identify the problems in time and provide help for future researchers. The purpose of this study is to explore a hybrid teaching model that combines the advantages of online and offline teaching, in line with the trend of higher education reform, against the background of the current epidemic, which has a far-reaching impact on the education field. The research on this topic includes the following five

aspects: research background; the definition of related concepts (mainly including the concepts of post-epidemic era, teaching mode, and blended teaching mode); results of the existing practice of online and offline blended teaching mode and research significance; multi-level elaboration on the influencing factors of the blended teaching mode; and the prospect of blended teaching mode development in the post-epidemic era.

## **2 Multifaceted Account of the Factors Influencing the Blended Learning Model**

### **2.1 Teaching Implementation Level**

The classroom teaching is based on the classroom norm, which means that the teacher's teaching can only meet the general learning needs of most students, and for those problems that cannot be solved by classroom teaching or do not have time, they can only be solved by students' independent learning and interaction between teachers and students after class. The network environment provides effective support for blended teaching and learning, extending teachers' teaching behaviors from inside the classroom to outside the classroom, which can greatly improve students' learning efficiency and learning effect [1]. Blended teaching and learning based on network teaching platforms and excellent educational teaching resources can allow teachers to take the lead while students play the subjective role. Teachers can use online teaching resources to teach in the classroom, and students can use online teaching resources and online interactive tools to study and discuss after class [2].

Han, Seok-Bin et al. (2010) studied the online experiences of 2,196 learners and concluded that the influencing factors include online learning environment, learning resources, individual learning process, teacher-student and peer interaction, and online learning effectiveness. Chen Wuyuan et al. (2020) concluded in their study of college students' online learning experiences that lecture mode, interaction mode, lecture session, and assessment session would affect the effectiveness of teaching implementation [3]. Zheng Qinhua et al. (2020) concluded that the factors influencing the implementation of online teaching and learning are infrastructure preparation, organizational level preparation, and pedagogical level preparation. Jia Wenjun (2020) and others proposed to improve the construction of the course platform and strengthen the technical support of online learning, return to the concept of "orientation-based", consolidate their IT literacy, and change the traditional learning style and focus on the development of good learning habits. Yu Hongtao's (2017) study suggested that the hardware and software conditions for hybrid teaching should be further improved, the teachers involved in hybrid teaching should improve their use of the online integrated teaching platform, and the teachers' ability to design and create micro courses and hybrid teaching designs should be improved. Zheng Hong et al. believe that universities should collect and organize excellent online teaching cases during the epidemic, invite outstanding teachers to share their experience and experience in online teaching, and eliminate some teachers' fear of hybrid teaching [4-7].

## 2.2 Teaching Management Level

Wang, Huiang et al. (2021) considered the most important influencing factors are the facilitation initiatives to serve students' online learning, the online teaching team led by teachers, the work group for online teaching and answering questions, and the reasonable schedule of course teaching tasks. Zhao Lili et al. believe that a perfect management service system, a good online environment and atmosphere, a reasonable faculty allocation, and an effective supervision system also greatly affect the normal teaching management. Besides, another group of scholars mentioned effective measures to strengthen teaching management in their studies. Zheng Hong et al. (2020) emphasized that universities should increase the weight of performance assessment of blended teaching, encourage teachers to try blended teaching methods to further optimize the assessment and evaluation methods of teaching work, and introduce differentiated management and incentive mechanisms to motivate the majority of teachers to engage in online teaching. Lai Fengpeng et al. (2021) proposed that firstly, the leadership should pay high attention to the reform of hybrid teaching, increase the investment in hybrid teaching, and improve hardware and software to meet the teachers' demand for hybrid teaching. Secondly, the relevant teaching departments should cooperate and introduce specific rules and regulations to actively encourage teachers to carry out hybrid teaching reform in their courses in a certain long period of time. The teaching management department should actively change the management concept and learn more about hybrid teaching [8-13].

## 2.3 Teaching Evaluation Level

Yan Ying et al. (2021) argued that online learning attitudes, access to information and offline course comprehension, cooperation and learning efficiency affect students' academic performance. Xie Maosen et al. proposed four factors for evaluating students' learning effectiveness in a blended teaching model based on online learning spaces, namely, learning effectiveness, learning process, attitude and feelings, and interaction and communication. Tang Wenxiu et al. proposed a five-dimensional evaluation model of blended learning, which advocates the evaluation of learning effectiveness from five perspectives: participation, interactivity, adaptability, satisfaction, and effectiveness. In addition, they gave practical and effective improvement measures in their respective studies. Li Lixin et al. (2013) proposed that, firstly, teachers and teaching supervisors should improve their mixed teaching design ability, and secondly, the teaching evaluation index system of the mixed education mode of adult higher education should be constructed from two aspects: teacher evaluation and student evaluation. Zheng Qinhua, Qin Ting et al. (2013) suggested that we should pay attention to students' independent learning ability and use the platform data to form a quality monitoring system [14-16].

Yu Shengquan, Lu Qiuli, Chen Shengjian and others proposed that the mixed teaching model needs to form a developmental assessment system, which should not only focus on students' academic performance but also discover and develop students' multifaceted potential, help students to know themselves and build self-confidence, and

focus on the educational function of assessment to promote the development of students at their original level. The idea of evaluation is reflected in the change from focusing on the test to focusing on the growth of learners, from focusing on the results to focusing on the process, and from quantitative evaluation to combining quantitative and qualitative evaluation system. With the support of information technology, the implementation and implementation of developmental teaching evaluation oriented to the learning process will undoubtedly play an important role in promoting the transformation of the higher education teaching evaluation system. When conducting developmental evaluation. In accordance with various evaluation materials and the associated course objectives, we should choose and employ flexible evaluation techniques, appropriately penetrate the concept of performance evaluation, take students' performance and results in the process of learning and applying subject knowledge or solving practical problems with information technology as the basis for evaluation, and comprehensively assess students' foundation of subject knowledge, learning process and methods, ability to solve practical problems with information technology, as well as related emotional and attitudinal evaluation. The assessment can be carried out in a number of ways with the support of the network environment, such as online assessments, file packet records, questionnaires, etc [17-20].

### **3 Prospects for the Development of Blended Teaching Model in the Post-epidemic Era**

From the above analysis, it can be seen that after 20 years of development, the practice and research of blended teaching and learning have gradually matured; blended teaching and learning is generally favored as the main form of teaching and learning in the future. However, Feng Xiaoying, and others also found that: The practice of blended teaching has been thriving in China, but the related research, especially the empirical research based on practice cases, is relatively small, and the research of blended teaching is obviously in its infancy. On the one hand, the application and research of blended teaching are primarily concentrated in the field of higher education, but there are fewer application cases and related research in teacher education, primary and secondary schools. Evidently, research on blended learning is moving more slowly than actual implementation. Therefore, in the future, we should keep promoting the use of blended learning in elementary and secondary schools, as well as in vocational education and other areas, and the intensity of blended teaching research and practice has to be increased [21-23]. According to these academics, blended learning research and practice should concentrate on the following elements:

#### **3.1 Exploration of the “Internet+” Blended Education Approach through Research and Practice**

Both practice and research show that people are still mostly confused about the concept and mode of blended teaching. Scholars such as Feng Xiaoying, Wang Ruixue et al. not only sorted out and explained the concept of blended teaching but also constructed a

classification framework of blended teaching models in two dimensions: physical characteristics and pedagogical characteristics, which are expected to help teachers, policymakers and researchers to understand blended teaching and design and select blended teaching models. In the future, they not only expect more practical examples of different blended teaching models, but also need to conduct comparative studies of different blended teaching models [27]. “Internet+Education” has refocused these scholars on blended teaching and has given a new connotation to blended teaching. How might blended learning be employed in the “Internet+” environment to give students a learning experience that is genuinely individualized and participatory? In this context, it is vital to investigate innovative “Internet+” blended learning models and techniques as well as their planning, development, implementation, and assessment [24].

### **3.2 Research and Use of Integrated Teacher Competence Development**

Studies have concentrated on the development and usage of blended learning as well as its assessment, but have paid less attention to the preparation for blended learning. There is a lack of investigation into the current situation of the readiness of blended learning institutions, the readiness of teachers’ attitudes and abilities, and the readiness of students’ attitudes and abilities. Therefore, in future studies, scholars such as Feng Xiaoying, Wang Ruixue, and Wu Yijun suggest that more research should be conducted on the readiness and acceptance of institutions, teachers, and students for blended learning. Nevertheless, to make blended learning a success, it is crucial to not only comprehend the attitudes and levels of readiness of institutions, instructors, and students, but also to assist those individuals in their preparation. Research and practice in this area is even less developed. Relatively speaking, research and courses on online learning and student competency preparation in distance learning environments (e.g., the development of independent learning skills) are relatively mature, and these results can provide a reference for student competency preparation in blended learning environments. However, there is an urgent need to address the issue of how to help teachers prepare for the competencies of blended learning. Teachers’ attitudes and competencies have a direct and significant impact on the effectiveness of blended learning, both in terms of preparation, design and implementation, and support, as well as in terms of influencing factors. Strengthening research and practice initiatives that investigate models and techniques to aid instructors in honing their blended teaching abilities is therefore urgently required [25-27].

Some academics contend that instructors and blended learning should be regarded from both the standpoint of teacher professional development and competence preparation. On the one hand, the professional competence framework for aspiring teachers will include capabilities in integrated learning and teaching as a core competency. To help teachers prepare for the competencies of blended teaching during their university years and before they join the workforce, it is also necessary to supplement the courses on blended teaching in the professional curriculum of pre-service teacher education. This will help teachers understand and master the methods and abilities of designing, implementing, and evaluating blended teaching. [28]. Some academics contend that

instructors and blended learning should be regarded from both the standpoint of teacher professional development and competence preparation.

### **3.3 Research on Institutional Level and Hybrid Teaching Evaluation**

Research findings have shown that institutional support is a key factor in the success of blended learning reform. At the practice level, however, institutional readiness for blended learning is far from adequate; at the research level, fewer researchers have focused on blended learning reform at the institutional level, and even less attention has been paid to it by domestic scholars. Therefore, we need to pay more attention to the institutional level of blended learning reform, both at the practical level and at the research level, and there are still many issues worth studying at this level. For example, at what stage of blended learning reform are primary and secondary schools, higher education institutions, vocational institutions, and training institutions in China? How to prepare for blended learning reform at the institutional level? How should institutions support blended learning? Etc [29]. At the same time, research on the evaluation of blended teaching needs to be strengthened in the future, both at the institutional level and at the curriculum level. A systematically designed, long-term evaluation mechanism with big data can provide a convincing basis for the effectiveness and improvement of blended learning [30].

### **3.4 Analysis of Learning in a Blended Learning Environment**

The future of research must also focus on learning analytics and their applications in mixed learning settings. Learning analytics has been increasingly used in online teaching research and practice due to the accessibility of student learning traces in online teaching environments. For blended learning, the difficulty of learning analysis lies in the collection of offline data. The problem of offline data collection is gradually being solved with the emergence of some auxiliary tools, such as automatically scanning students' test papers and assignments into electronic versions and automatically evaluating and tallying their scores. As a result, the future combination of blended teaching and learning analytics will undoubtedly be the mix of offline and online data, which will result in ground-breaking discoveries and advancements in these two domains.

## **4 Conclusion**

A total of 75 representative kinds of literature are referenced in this paper. Based on ensuring the appropriate relevance and complete richness of the literature, this paper reviews the development stages of the blended teaching model, the new development of the blended teaching model in the post-epidemic era, the concept of the blended teaching model, and the research significance of the blended teaching model in the post-epidemic era. The results of the above-mentioned literature combing also reflect some problems. On the one hand, there is a lack of more profound intention, which is

only a superficial discussion and a lack of systematic summary; on the other hand, most of the researchers start from the background of the post-epidemic era to study the impact factors on blended teaching, but do not put forward the improvement strategies with universal value, which means a lack of effectiveness. This paper is still at a relatively shallow level for exploring research on blended teaching models in the post-epidemic era, and there is a lack of research on its realistic practical issues. The next research will try to focus on exploring the practical issues of web-based teaching and learning and the normalization of blended teaching in the post-epidemic era.

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