Integration of off-line & on-line: the Concept and Action Choice of Online Teaching of Vocational Education in Post-epidemic Era

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Abstract: During the epidemic period, vocational colleges made a preliminary exploration of online teaching in response to the national call of "suspending classes without stopping learning". Due to lack of experience, many problems and deficiencies were exposed. This paper systematically analyzes and summarizes the crux of online teaching in vocational colleges during the epidemic period, and then combs out the reform ideas of online teaching,which provides certain guidance and action path for the normal operation of online teaching mechanism in the post-epidemic era—integration of off-line & on-line, and concretely expounds the specific path of integration of off-line & on-line towards normalization from three levels: home-school integration, virtual-real integration and production-education integration.

Key words: Post-epidemic era; Vocational education; Online classroom; Integration of off-line & on-line

At the beginning of 2020, in order to minimize the impact of the epidemic on the education industry, the state issued the order of "suspending classes without stopping learning"in time to guide schools at all levels to carry out online teaching. Although the tension of the epidemic spread in a large area has been greatly eased, the situation that the global epidemic broke out in a small scale, which changed from place to place and disrupted the normal pace of teaching still exists. Some scholars have defined this as "post-epidemic era", which also refers to the era of coexistence with human beings after the epidemic enters normalization.[1] Now, it's the season of high incidence of infectious diseases, how can the teaching of vocational colleges be carried out in an orderly way without interference?

1 Exploring: the problems and shortcomings of online teaching in vocational colleges during the epidemic period

Facing the sudden epidemic, vocational colleges actively responded to the call of the state to carry out online teaching, which basically completed the online teaching task and the teaching connection after the resumption of classes,However, due to lack of experience, some problems appeared in the process of exploring the implementation of online teaching.

1.1 The communication and interaction between teachers and students are scarce

According to the data survey of China Education Information Network, among the difficulties and problems encountered by teachers in online teaching, "insufficient interaction between teachers and students" and "difficulty in judging students' understanding" are particularly prominent, accounting for 39.78% and 39.29% respectively. Communication and interaction between teachers and students play an important role in teaching implementation, teaching management and evaluation feedback. Teachers mobilize students' learning enthusiasm through interaction with students, understand students' learning situation, and make targeted adjustments to teaching. Through communication with teachers and classmates, students can improve their concentration and happiness, and master and application knowledge more deeply. However, in the online teaching during the epidemic period, there were very few interactions and exchanges between teachers and students.

On the one hand, teachers and students need to be familiar with and adapt to the operation of online platform for a period of time. For teachers with low information literacy, it takes a lot of time and energy just to explore the operation

process of the online platform. They are very satisfied when they can successfully finish a class on the platform, and can't attend to the interaction with students at all. In order to maintain online order and prevent students from chatting privately in the comment area, some teachers even started the no-speech mode. For students, because they are unfamiliar with the platform at first, they dare not speak freely and interact with teachers. On the other hand, students in vocational colleges are not aware of autonomous learning and have poor self-discipline. Without supervision, they are easy to wander through the screen. When asked questions in class, they can "follow the crowd" and copy other students' answers. Even if they answer the irrelevant questions, they can excuse that the network is unstable and they have not heard clearly. This makes it difficult for teachers to accurately judge students' mastery of knowledge when teaching online. Inefficient online classes without a sense of participation are more like performances of teachers talking to themselves, and students' learning efficiency and quality cannot be guaranteed.

1.2 The theory and practice of online teaching are split

The biggest difference between vocational education and general education in implementing online teaching is that the practicality and application of technical skills teaching cannot be guaranteed. First of all, vocational colleges have little experience in online teaching. Considering the epidemic situation, teaching is subject to the technical conditions of various online platforms, many practical courses can not be set in online teaching arrangement. Most of the courses that take the lead in online teaching are mainly theoretical courses, which is not much different from general education. Secondly, vocational colleges lack uniform online curriculum standards, while the curriculum and knowledge of vocational education are unique. If the online curriculum standard of general education are simply transferred, the essence of the curriculum knowledge of vocational education cannot be able to highlighted, and the actual effect of online teaching cannot be brought into play. Vocational education, as a type of education, lacks the curriculum standard of practical operation, which can't guarantee students' practical ability. Thirdly, online teaching is in a single form. This teaching form has returned to the traditional state where teachers talk and students listen. Not only is the teaching content limited to theoretical courses,but the hands-on practice is basically impossible to achieve. Moreover, even if the verbal procedural knowledge can teach and describe movements by

pictures, vocational school students who lack action skills training will still be confused when they encounter practical problems.

1.3 The foundation and operation of online platform are weak

As a test of the "internet plus teaching" model, the COVID-19 epidemic not only caught the teaching activities of schools off guard, but also caught the online platforms off guard. According to the statistics of epidemic prevention and control in higher vocational colleges, during the epidemic period, more than 95% of vocational colleges in China used teaching platforms such as Blue Ink Cloud Class, Wisdom Vocational Education and Nailing.[2] Although these teaching platforms have been developed and used for many years, and their functions are relatively complete, in this large-scale online campaign, there are problems such as server crash and stuck due to excessive client traffic. During the peak teaching period, teachers and students often react to problems such as login failure, disconnection and delay. [3]There are also some Internet platforms, such as Tencent Conference, Zoom, etc., which have solved the problem of insufficient concurrency and the state of classroom live broadcast is relatively stable, but they are not professional vocational education teaching platforms, so they have never achieved ideal results in assisting teaching and learning. Network crashes, platform crashes, frequent failures ... Any problem will make online teaching impossible, and the various online classes expose many problems in the operation of the platform and put forward higher requirements for the platform.

In addition, although many vocational colleges have built the foundation of wisdom laboratory for many years, most of them are designed based on face-to-face teaching mode and operated simply in wisdom laboratory, so the technical foundation is relatively weak. Although it can meet the operational needs of teachers in the daily teaching process, it is impossible to convey situational professional knowledge because of the lack of technical support for creating learning situations during the epidemic period when the distance is far away and communication is not smooth.

2 Analysis: the exploration of online teaching problems in vocational colleges during the epidemic period

In order to better analyze and summarize the crux of online classroom in vocational colleges in the early epidemic period, further promote the innovation of teaching mode under the background of "normalization of epidemic situation", explore

the reform ideas of online classroom in vocational education, and provide guidance and compliance for the normal operation of online teaching mechanism in the post-epidemic era, it is necessary to seriously analyze and summarize the problems and deficiencies found in the initial exploration during the epidemic period.

2.1 Teachers and students' information literacy lags behind

In the trend of educational informationization, vocational education in the future will be more open, diversified and personalized, hence informationization and vocational education will inevitably have a more comprehensive and profound integration. Especially in the context of the normalization of the epidemic situation, an important prerequisite to solve the problem of poor communication between teachers and students and unexpected situations at any time is to improve the information literacy of teachers and students.

As the leader in the teaching process, teachers' information literacy is the premise to guarantee the quality of online teaching. Teachers must sincerely accept the teaching reform in the information age, treat new technologies and products with an active learning attitude, and actively integrate into the information wave by asking others to learn from each other, listening to lectures, visiting and comparing, and participating in training to improve skills, so that they can innovate their teaching models and explore their own classroom styles. Students born after "00" are "aborigines" in the information environment, and they have a faster ability to acquire and accept new information technology. Strengthening the study of information technology training courses and online training packages can effectively promote the improvement of students' information literacy. At the same time, teachers and parents should correctly guide students to the road conducive to their own learning and development, so as to avoid taking advantage of the situation and going astray.

Online teaching should not be the simple transportation of traditional class, but the innovation of teaching mode, teaching method and teaching means. In order to meet the needs of education and teaching in the post-epidemic era, the new teaching mode will inevitably lead to the reconstruction of "teaching and learning". From the perspective of teaching, front-line teachers should fully absorb the experience of online teaching during the epidemic period, sum up the differences between online teaching mode and traditional off-line classroom in teaching concept, teaching method, teaching implementation and teaching evaluation, and explore a new teaching path of "integration of off-line & on-line" between off-line and on-line to adapt to the development of the information age. From academic point of view, apart from strengthening the guidance and feedback to students, how to improve the effectiveness and self-discipline of students' learning and how to cultivate autonomous learning ability and lifelong learning ability are the key issues that should be paid attention to in the online teaching mode of "post-epidemic era".

2.2 The lack of professional attributes of the curriculum

Vocational education is a different type of education from general education, and its professional courses should also be different from the knowledge structure logic of discipline system, but the working process logic based on working situation.[4] Online teaching in vocational education should closely follow its essential attribute of "occupation", pay attention to the cultivation of practical ability and application skills, and emphasize the acquisition of skills in specific learning situations.[5]

In terms of teaching content, professional courses and practical training courses can best reflect the attributes of vocational education courses. Online teaching can break the barrier of time and space, enhance the physical and situational nature of online teaching, let students reflect on practice in the created learning situation, construct complete professional knowledge, and improve professional ability and professional quality.

In teaching design, vocational education can't copy the teaching type of general education, but must pay attention to the task-oriented design of teaching and highlight the "professional attribute" of teaching. Online teaching should not be limited to teachers teaching and watching videos, but should take tasks as clues, lead students to actively learn knowledge and skills, and let students actively construct knowledge driven by tasks, so as to improve the ability of problem solving and comprehensive application. At the same time, it can effectively improve students' awareness of classroom participation and help teachers test classroom effects. The application of task-driven teaching method can effectively break the long-standing dualistic separation of online teaching theory and practice, and truly realize the "integration of theory and practice" teaching.

In terms of personnel training, online teaching in

vocational colleges need to develop personalized training programs with outstanding professional attributes and advancing with the times. The training goal of vocational education should be high-quality technical and technical talents who can adapt to the front-line posts of production, management and service. During the epidemic period, all walks of life have updated their posts more or less. Therefore, vocational colleges should fully consider the social needs and post requirements in the post-epidemic era, and formulate growth plans and career plans closely related to each student's future development.

2.3 Insufficient implantation of platform technology

Large-scale online teaching not only should not be a "deferred strategy" for school teaching to deal with the sudden COVID-19 outbreak, but also should not be an "exercise opportunity" for online teaching platform to muddle along. For a long time, education is one of the fastest growing industries in the economic and social fields, and technology implantation has contributed to its rapid development. Although computer network technology, communication media technology and multimedia application have been widely used in the construction of online learning systems, online course development and other platforms, in the post-epidemic era, online learning forms such as personalized learning, deep learning and ubiquitous learning, which are needed by society, also need the participation and implantation of virtual simulation technology, big data analysis and artificial intelligence technology. [6] The platform should actively absorb users' feedback and evaluation, timely understand users' needs, optimize teaching experience and improve the overall level of the platform.

The role of online platform is far from simply connecting teachers and students, but should guide students to the rich resource database world. In response to the call of the state, all major network databases open their resources to the society free of charge during the epidemic period in China, and provide massive learning technical support and self-test feedback services. Students in vocational colleges have low learning initiative, lack of enthusiasm and lack of self-control, hence, timely evaluation of self-test feedback is very significant for the improvement of teaching quality and students' self-efficacy.[7] This requires the online technology platform to have a perfect quality evaluation system to improve students' metacognition and self-cognition, so as to assist teachers' supervision and management and support students' evaluation.

For the problems and drawbacks exposed during the epidemic, the online learning platform needs to seize the opportunities and challenges given by the times in time, adjust and correct deficiencies, upgrade innovative technologies, improve the two-way efficiency of online teaching and learning, and build the online platform into a multi-functional service system integrating resources integration, curriculum development, online teaching, virtual learning creation, online self-test evaluation and answering questions.

3 Outlook: Action Choice of "integration of off-line & on-line" in Vocational Colleges in Post-epidemic Era

In view of the analysis of the problems in the online classroom during the epidemic period and the current situation of the domestic epidemic in the post-epidemic era, many experts and scholars put forward that vocational schools should implement the "integration of off-line & on-line" teaching mode. After all, with the impact of the epidemic, online teaching has become an indispensable part of vocational education. Then, how to play the advantages of on-line and off-line smoothly and effectively in the "integration of off-line & on-line" teaching is the most significant thing to promote future teaching and learning in vocational schools.

3.1 Integration of home and school

For a long time, vocational school students' family education has more or less defects and problems. Many vocational school students 'parents entrust their children to the school with full authority and act as "outsiders". The lack of communication between home and school is magnified under the microscope of epidemic situation, which seriously affects the exertion of educational effect. Education is the result of the joint efforts of many parties, especially vocational education. The integration of family and school is the foundation and guarantee for vocational colleges to implement "integration of off-line & on-line" teaching.

First of all, parents and teachers need to reach a consensus on the concept of education-children's growth needs to be accompanied and guided, especially when the epidemic has brought many changes to children, parents should promptly guide their children's psychological problems, urge their children to take it seriously, and help them adapt and get used to online teaching. Secondly, families and schools need to play complementary roles-giving full play to family education where school education has too much to take care of. Because of the screen barrier, teachers often can't know the students' real learning situation, so

parents need to report the students' status to teachers in time to make up for the communication gap between teachers and students. In addition, compared with the strict constraints of the school, the family environment is more relaxed and comfortable, and it is difficult for students with weak self-control to achieve learning results. Therefore, teachers are required to innovate online teaching methods, and parents are also required to assume the role of supervision to avoid children being lazy and avoiding school tasks.

Home and school need to form a joint force to promote the smooth development of "integration of off-line & on-line" teaching. "The most complete education is school-family education. " Sukhomlinsky said. Parents and teachers must think in one place, work hard in one place, and integrate home and school together, so that students can have a sense of purpose, let learners adapt to the learning environment of "internet plus" slowly, and develop the habit of making full use of resources to learn independently in future life, so as to better realize the teaching purpose of "integration of off-line & on-line" and better practice the goal of lifelong learning.

3.2 Integration of virtual and reality

The "integration of off-line & on-line" implemented in vocational education is quite different from the traditional mixed teaching. The focus of its discussion is no longer the question of who has more and who has less online, but the question of how to better integrate the two sides to give full play to their advantages.[8] At the same time, for the reason that vocational education emphasizes on hands-on operation, it is quite different from the "integration of off-line & on-line" advocated by general education. In addition to synchronicity and coexistence, the "integration of off-line & on-line" implemented by vocational education is more dedicated to breaking through the blockage of on-line and off-line theory and practice, and realizing the integration of theory and practice at both virtual and realistic levels.

According to statistics, some vocational schools with relatively perfect digital campus construction have performed better in the process of dealing with the epidemic, because these schools have integrated online virtual classroom into the normal reality teaching very early. During the epidemic period, the defect that online teaching can not meet the practical needs of vocational colleges has been criticized, which seriously hindered the overall construction of online virtual campus. Therefore, in the "post-epidemic era", breaking through the barriers between virtual and reality is to break through the barriers of theory and practice, and form an online virtual campus with perfect online theory and practice, and an off-line real campus with perfect off-line theory and practice. On the other hand, it is to break through the gap between on-line and off-line. Neither traditional face-to-face instruction nor virtual space, but the most suitable teaching mode of on-line theory, off-line practice or combination of off-line theory and on-line practice is selected according to the epidemic situation, so as to realize the deep integration of on-line virtual campus and off-line real campus. The teaching model of virtual-real integration is shown in Figure 1.
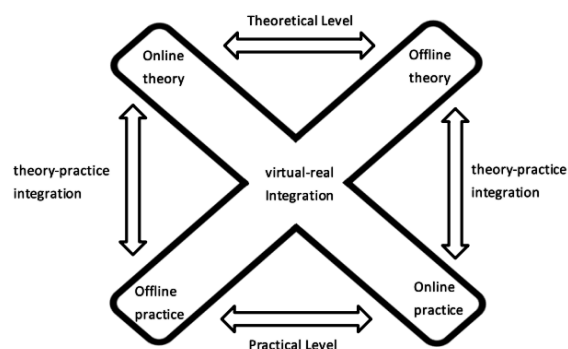

Figure 1. Virtual-real integration teaching model

3.3 Integration of production and education

Deepening the integration of production and education in vocational education is another important way to ensure that "integration of off-line & on-line" teaching becomes the norm, and it is also an urgent requirement to promote the structural reform of talent training supply side and industrial demand side. [9] The epidemic situation has accelerated the transformation and upgrading of posts, and the traditional vocational education model can no longer meet the demand. In the long run, the deep integration of industry and specialty is very essential for the construction of a new vocational education system.

Vocational education, as an important hub linking industry and talents, should seize the significant opportunity brought by the epidemic situation. First of all, vocational colleges should pay attention to the development and changes of related industries in a timely manner, analyze the future trend of industrial development, adjust specialty settings, and closely meet the needs of industries, so as to achieve the symbiosis and win-win between education and industry. Secondly, vocational colleges should focus on the training and development of human resources, strengthen the training of vocational and technical skills of various majors, pay attention to the deep integration of online teaching and skill

training, build an education and teaching mode of combining work with study, and cultivate new vocational education talents with professional knowledge, vocational skills and information literacy. Furthermore, establishing and perfecting the practice training system during the normalization of epidemic situation and carrying out corresponding productive practice training with enterprises by means of "on-line" and "off-line" can not only relieve the pressure of enterprises in the process of resuming work and production, but also provide manpower support for the development of enterprises and help enterprises solve their urgent needs, and also accumulate practical experience and provide more job opportunities for vocational college students. Finally, the "integration of off-line & on-line" teaching mode needs to break through the shackles of traditional teaching, so

vocational colleges need to broaden the ways for enterprises to participate in the process of vocational education personnel training, and strengthen the construction and development of campus digital resources and the construction of online virtual campus with the help of enterprises' Internet infrastructure and innovative elements. In the post-epidemic era, it is necessary for enterprises and vocational colleges to jointly build and share educational resources, produce a continuous dynamic mechanism and a normalized support mechanism, and form a talent training model with vocational education characteristics and a new ecology with balanced development. [10]

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