
Research on the Application Strategy of "Internet +" in the Construction of Professional Curriculum System —— Take the Environmental Design Major as an Example

Shi Wenwen

School of Cultural Communication and Design, Zhejiang University of Finance & Economics Dongfang College, Hangzhou, China

Email address:

3170858228@zufedfc.edu.cn

To cite this article:

Shi Wenwen. Research on the Application Strategy of "Internet +" in the Construction of Professional Curriculum System —— Take the Environmental Design Major as an Example. *Education Journal*. Vol. 11, No. 4, 2022, pp. 180-189. doi: 10.11648/j.edu.20221104.17

Received: July 4, 2022; **Accepted:** July 18, 2022; **Published:** July 29, 2022

Abstract: Under the background of "Internet +" promotion in China, the research on the curriculum system of professional education in colleges and universities is developing day by day. On the basis of summarizing the influence of various theories on the development of "Internet +" teaching mode, this paper takes the curriculum system of environmental design as the practice carrier, and explores the application strategy framework. First of all, it clarifies the recent contradiction of "Internet +" mode applied in the professional curriculum system, that is, the contradiction between standardized education supply and personalized, diversified and differentiated education needs, and the contradiction between traditional teaching system and flexible, diverse and open education forms. Then it applies the systematic strategy, differentiated strategy and diversified strategy in the construction of macro learning support service system, the service system design of micro curriculum, classification and selection of fusion forms of Internet and traditional face to face class, teaching differentiation supported by big data, the supply of teaching resources and the implementation of practical teaching. Therefore, an application framework with reference value and universal significance is formed, thus to offer an enlightenment to those reforms of curriculum system which promoted by the tremendous Internet tide.

Keywords: Curriculum System, Internet +, Application Strategy, Environmental Design

1. Introduction

In 2015, Premier Li Keqiang proposed to formulate the "Internet +" action plan, and the domestic policy environment began to guide the "Internet + education". The Ministry of Education, the National Standardization Management Committee, the Central Committee and the State Council successively issued such policy documents as the "Education Informatization 2.0 action plan", "the overall framework of smart campus"[1], "China's education modernization 2035"[2] and the "implementation plan for accelerating education modernization (2018-2022)"[3], to promote the development of educational informatization from the perspectives of hardware, software, teachers, technology and management. The reform tide of "Internet + education" is unstoppable. Since the outbreak of the COVID-19 in 2020, education has been impacted unprecedentedly. China has further accelerated the deployment and promotion of "Internet + education",

which marks the beginning of a new stage of China's educational informatization from integrated application to innovative development [4]. According to the 48th statistical report on China's Internet Development released by China Internet Network Information Center (CNNIC), by June 2021, the number of online education users nationwide had reached 325 million, accounting for about 1/3 of the total number of Internet users. With the recurrence of the epidemic, colleges and universities across the country have been constantly switching between the modes of emergency online teaching and face-to-face teaching, which has also promoted the exploration and research of the "Internet +" teaching mode, and obtained in-depth practical experience and teaching results. Domestic research on the "Internet +" teaching mode has emerged in endlessly, and has also extended to the design field of curriculum system and talent training scheme.

However, there is little research on the strategy of constructing the curriculum system based on "Internet +" background. This paper attempts to answer how to construct the application strategy framework of the "Internet +" model in the professional curriculum system from the three aspects of systematic strategy, differentiated strategy and diversified strategy, in order to provide methods for the optimization and reform of the professional curriculum system under the background of "Internet +".

2. Basic Concept of "Internet + Education"

2.1. Definition of "Internet + Education"

The general office of the CPC Central Committee and the general office of the State Council issued the implementation plan for accelerating the modernization of Education (2018-2022), which proposed to explore a new mode of talent training under the condition of "Internet +" and focus on building a new education and teaching mode based on information technology, a new mode of education service supply and a new mode of education governance. At present, the academic circle have not reached a consensus on the definition of "Internet + education", but we can clearly grasp the characteristics of "Internet + education" - the innovation of information technology, ideas, models, educational organizations and practice systems.

2.2. Development and Evolution of "Internet + Education"

The development of "Internet + education" presents three stages: the embryonic stage from 1996 to 2004, the popularization stage from 2005 to 2010, and the blowout development stage from 2011 to now [5]. Looking at the germination and development of the "Internet + education" model, it is not difficult to see that it is sustainable, inclusive and relevant to the time. At the national policy level, China's education informatization strategy has laid the foundation for "Internet + education". At the level of basic theory, it is deeply influenced by constructivism, connectionism and other philosophical theories [6]. The combination of theories was benefited from the development of learning modes such as mobile learning, flipped classroom and MOOC class. For example, in 2001, inspired by the concept of mobile learning, Voci E and others proposed to realize hybrid learning through the combination of classroom teaching and self scheduled teaching provided online [7] to lay a theoretical foundation for the development of "Internet + education"; Combining the theories of cognitivism, behaviorism and constructivism, Driscoll defines blended learning as a combination of multiple teaching methods [8]; Li Hongmei et al. launched the exploration of the new teaching mode in the post MOOC class period [9]; Based on Garrison's community of inquiry model [10] and teaching support theory, Feng Xiaoying proposed a hybrid teaching dynamic supporting model, and built a hybrid learning design model in the "Internet +" era. It is proposed

that the key to this model lies in the core objectives, learning experience and the design of learning support [11]. In terms of development direction, it is supported and restricted by new technologies such as the Internet, big data and artificial intelligence. For example, with the development of experience economy and big data technology, user experience has received unprecedented attention. Hu Yongbin has defined and clarified the definition and constituent elements of learning experience in an intelligent learning environment [12]. In 2011, many domestic and foreign scholars began to focus on the learning experience research of online teaching, and focused on the discussion of influencing factors in the field of online education.

3. Contradiction of "Internet +" Mode in Professional Curriculum

3.1. Contradiction Between Standardized Education Supply and Personalized, Diversified and Differentiated Education Demand

With the development of economy and technology, the progress of society and the improvement of people's living standards, the recipients of university education have different learning needs driven by interest, based on their own ability, which is difficult to satisfy from the traditional classroom; Through Internet technology, cloud computing and big data, students' access to knowledge is more convenient and diverse, and their dependence on standardized teaching in traditional university classrooms is further reduced.

3.2. Contradiction Between Traditional Teaching System and Flexible, Diverse and Open Educational Forms

The "Internet +" model provides flexible, diverse and open teaching schedule, teaching scene, which is contrary to the traditional teaching system. If it is uniformly required to adopt the "Internet + " form, such as online learning before class, offline learning in class and online learning after class, which will not affect the class hour arrangement of offline courses, but cause great pressure on learners. If we consider designating power to teachers to optimize teaching arrangements according to curriculum conditions, we will face greater pressure in teaching supervision, teaching management and teaching evaluation.

4. Logical Framework of Application Strategy

Based on the above contradictions and the practical exploration and summary of the "Internet +" teaching mode, this study has constructed the application strategy framework of the "Internet +" mode in the professional curriculum system. Taking learners as the center, it has given specific strategy prototypes for support services, integration forms and resource supply from the perspectives of systematization, differentiation and diversity. Among them, systematic

strategy is the foundation and premise of the "Internet +" model in the application framework of professional curriculum system, which can be divided into the construction of macro learning support service system and micro curriculum service system; the differentiated strategy is the core of the framework, which mainly discusses the difference of fusion forms and the differentiated strategy of teaching supported by big data; Diversity strategy is the key factor of the framework, which is mainly carried out from the perspective of the supply of educational resources and the implementation of practical teaching.

4.1. Learner Centered

The focus in the "Internet +" stage has changed from teachers of traditional classroom to learners [13]. In this context, the construction of professional curriculum system also follows humanism. Therefore, it is necessary to fully understand the basic situation of learners. The common descriptions of the learners of environmental design major include: strong imaginal thinking ability, certain artistic self-cultivation, innovative thinking ability, strong hands-on ability, lively personality, and the use of electronic products; poor logical thinking ability, lack of design practice experience, poor self-learning ability, weak awareness of time management, and vulnerable to external factors. While seeing the commonness, we should fully understand the differences and diversity of the group in learning ability, family background, personality and hobbies.

While exploring and formulating support service system, fusion form, educational resource supply and practical teaching implementation strategies, it should be considered the needs of learners and the differences and diversity of learners.

4.2. Systematic Strategy

4.2.1. The Construction of Learning Support Service System

Learning support service has always been a research hot spot in the academic circles on the construction of the "Internet + education" model. Domestic scholars have put forward the design of learning support services under MOOC mode, namely, educational technology support, educational environment support, educational resources support, educational management support and interactive activity support [14]. From the macro perspective of system, the reform of professional curriculum system under the "Internet +" mode is also inseparable from the construction of learning support service system, and the design of this system is also applicable. Among them, educational technology support is the guiding and driving factor of the "Internet +" model. It provides technical support for its application in the curriculum system and promotes the reform of the "Internet +" model through its own reform. Educational environment support includes the support of physical space, social space and information space [15], which is the basis for teaching activities. By improving the construction of network infrastructure and promoting the integration of campus ternary space, we can improve the

support of educational environment. The support of learning resources includes online classroom, online new media, VR virtual simulation laboratory, etc., which is the premise for the construction of learning support service system. Educational management support plays the role of planning, guiding, supervising and controlling, and is the guarantee for the development of teaching; interactive activity support includes support for human-human interaction, human-object interaction and human-digital interface interaction. It is the center of learning support service system. The above five categories complement each other and interact to form a system. Therefore, to improve the "Internet + education" learning support service system, we cannot deal with each category individually, but start from the whole, and clarify the role and interaction mechanism of the support system of each category.

4.2.2. Service System Design of Micro Courses

(i). Analysis of Learning Experience Journey

Learning experience journey analysis is to use the method of design thinking to map from the learners themselves to describe what contacts are involved in each stage of learning and what obstacles may be encountered. Understanding students' learning process is the only way to realize the student support service system [16], and it is also the premise of "Internet +" teaching curriculum design. The learning experience itinerary is a visual integrated representation, which shows the various contacts that students interact in the whole process of accepting the "Internet +" teaching mode. The whole process starts from receiving the pre-class notice and begin the blended learning to checking the final results. The journey map helps to identify the key contacts that appear in the learning process in turn, such as contacts that interact with people, physical contacts and digital contacts, understand the emotions of learners in each contact, find pain points and find opportunities, so as to optimize the learning experience.

Taking the course "building structure" of environmental design as an example, table 1 shows the learning experience of the third round of hybrid teaching design, which reflects a complete teaching session plus pre-class and post-class links. One learning unit includes E-learning tasks before the class, teaching arrangements in the middle of the class and after-class exercises. Each task contains a variety of online or offline contacts, and students have generated negative or positive learning emotions in the contact experience, such as anxiety in the online evaluation stage and excitement when receiving learning comments. The itinerary chart can visually reflect the emotional fluctuation of learners. By in-depth analysis of the causes, we can obtain critical pain points, and think about the solutions to the pain points to obtain opportunity points, providing directions for the refinement and optimization of teaching programs. Offline emotion curve comes from quantifying learning emotion by referring to user satisfaction questionnaire, positive and negative emotion scale and other questionnaires. The online emotion curve mainly depends on the big data support of the learning platform.

Table 1. Learning experience journey.

Stage	Preparation	E-learning	Face to Face Teaching	Exercises	Assessment	
Learning Behavior	Receive Notification Download APP Register & Login	E-learning Online Homework	Other Materials Online Assessment Face to Face Teaching Activities	Online Submission	Learning Comments Check Result	
Learner Emotion	Confused	Immersed	Cheerful	Immersed	Satisfied	Excited
Pain Point	<ol style="list-style-type: none"> 1. confused about teaching mode and requirements 2. worry about self discipline 3. anxious about APP use 	<ol style="list-style-type: none"> 1. confused about learning content 2. dissatisfied with the questions inserted in the video, sometimes stuck on the questions for a long time 3. anxiety about time arrangement and unable to complete online tasks 4. dissatisfied with the black screen 5. lack of interaction 	<ol style="list-style-type: none"> 1. the test content cannot be connected with the knowledge learned 2. through the test, felt that learning was not solid enough, which will reduce the enthusiasm for learning 3. online testing is not user-friendly or intelligent 	<ol style="list-style-type: none"> 1. confused about the process of submitting the homework online 2. unable to see the marks of teachers' comments on mobile phone 	<ol style="list-style-type: none"> 1. cannot see the teacher's comments on the final homework 2. teachers cannot timely evaluate the students' learning status 	
Opportunity	<ol style="list-style-type: none"> 1. warmup design 2. introduce the characteristics, requirements, teaching objectives, APP use of the course through the detailed H5 page 3. preparation 4. establish classes in APP in advance, upload materials, curriculum, learning instruction 	<ol style="list-style-type: none"> 1. optimize interactive questions 2. treat different on the interactive topics with different degree of difficulty; 3. optimize task mode 4. it is recommended to consult students in advance and choose challenge, regular or fully open mode 5. tips for difficult points 6. teachers can list the key and difficult points of this chapter above the video task 	<ol style="list-style-type: none"> 1. change of learning consciousness 2. teachers should emphasize that online assessment is part of the learning closed loop, that is, assessment as learning, and encourage students to treat the test results correctly and fill the gaps through the test 3. excessive learning mode 4. in the early stage of hybrid teaching, the traditional mixed transition mode should be adopted to gradually guide students to establish the awareness of autonomous learning and cultivate their ability of time arrangement 	<ol style="list-style-type: none"> 1. assignment presentation teachers can demonstrate how to submit assignments through face-to-face teaching 2. optimization APP operation module 3. enable students to smoothly see the marks and comments of teachers through the mobile terminal 	<ol style="list-style-type: none"> 1. additional evaluation 2. with the help of the big data in the background of the APP, students' learning data in all aspects can be obtained 3. through online learning evaluation, each student's performance can be objectively evaluated from the aspects of learning performance, online duration, homework performance, interaction frequency, etc 	

(ii). Service Blueprint

Service blueprint is a visual interface tool for thinking about the service process of each department in service design. It focuses on the working logic and resource allocation from the outside to the inside, and is related to the user experience. The essence of education is service. Although economic benefits are not its goal, it still has service objects, service processes, service quality and other elements, and its ultimate goal is to improve learners' learning experience and improve the quality of education services. Therefore, the introduction of service blueprints into the "Internet + education" model has the advantage of keeping pace with the times. Compared with the traditional teaching mode based on teachers, students and schools, the mode of "Internet + education" has more stakeholders. The generation of teaching elements such as

cloud, network and end-to-end integrated education cyberspace, internet education institutions and industries, digital resources and digital platforms have a profound impact on the "Internet +" teaching service system.

In the service blueprint, we can see that the line of teaching interaction, line of visibility and line of internal interaction have divided the "Internet +" teaching activities into four levels, namely, the learning journey, the teaching front desk including teacher behavior and digital interface, backstage and support process. The logical order is expressed by arrows among the elements, and the time sequence is expressed by positions. For example, on the contact point of face-to-face teaching, teachers' activities mainly include teaching tasks such as asking questions, organizing discussions, dispelling doubts, and emphasizing key points. Therefore, there is interaction between teachers and students. At the same time,

teachers use the E-learning APP to conduct roll call, select students, group, propose discussion topics and other processes. There is also interaction between teachers, students and the digital interface. On the APP, teachers need to input discussion topics and upload learning tasks in advance, which is the work of the teaching background and can not be seen by students.

At the level of teaching service blueprint, discussing the logical sequence, process allocation and resource allocation of the front and back stages of teaching can enable the teaching side to be more comprehensive, systematical and understandable.

Taking the service blueprint of *Building Structure* as an example, we can see the characteristics of hybrid teaching intuitively from Figure 1: first, the course uses different Internet media, such as Wechat, E-learning APP, Tencent conference and campus educational administration APP; Second, teachers need to spend a lot of time and energy on the backstage preparation and maintenance, and have high requirements for teachers' information literacy; Third, it involves more teaching service providers, such as operators of E-learning APPs, camera team specialized in course recording, etc.

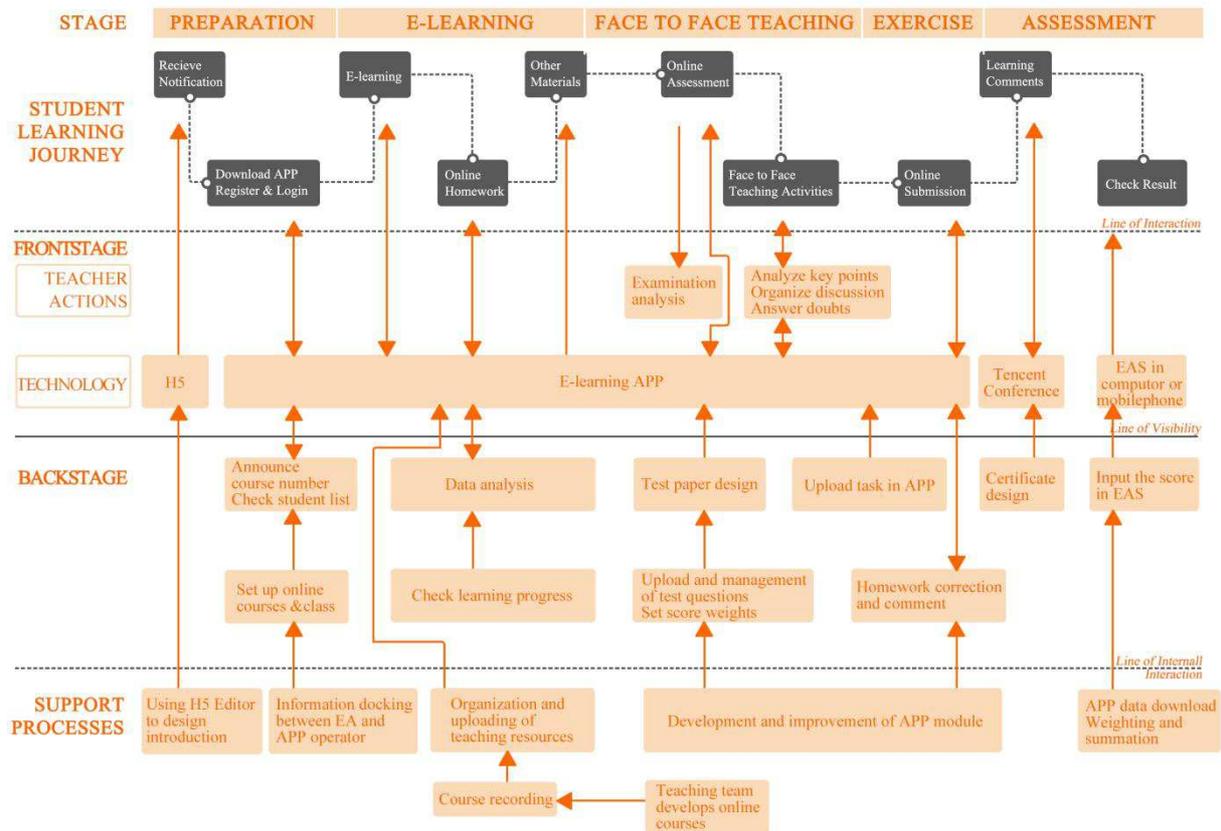


Figure 1. Teaching Service Blueprint of Building Structure.

4.3. Differentiation Strategy

4.3.1. Differences in Fusion Forms

Through sorting out the curriculum system of the environmental design specialty and the statistics of the teaching mode, according to the different methods, teaching arrangements, use of teaching platforms and teaching resources of the "Internet +" teaching integration, professional courses can be divided into phased fusion, integrated fusion, offline dominant fusion and complete fusion.

Phased fusion means that in the process of face-to-face teaching, due to the influence of teaching design or external teaching environment, online learning is arranged for a period of time, including teaching live broadcast, uploading pre-recorded teaching videos, accompanied by online discussion, online homework and other learning tasks, introducing MOOC, internet

teaching course resources and other methods. Refer to figure 2 for teaching arrangement. The advantages of this integration mode are that the time for face-to-face teaching and online learning is relatively concentrated, and the two teaching modes are relavent, complete and continuous. At the same time, it can continue to ensure the teaching progress in the case of suspension affected by the epidemic, so it has good adaptability; The disadvantage is that due to the lack of pressure from face-to-face class and teaching interaction, the learning effect and presence of online learning are poor.

Integrated integration refers to the insertion of a short section of online teaching method using the Internet in each traditional face-to-face teaching process, such as classroom discussion and data analysis using the online teaching platform, playing relevant video learning using the Internet, sharing screens using online conference software, etc. the teaching arrangement can be referred to figure 2. The

advantages of this integration mode are that the teaching activities are rich in content and make full use of the advantages of online learning. The content keeps pace with the times and has a good audio-visual effect. At the same time, the students have a good sense of presence. The shared screen can

solve the problems of unclear multimedia projection, poor operability and too small font; The disadvantage is that students have less time for online learning, less independent learning arrangements, and it is difficult to achieve personalized and differentiated teaching.

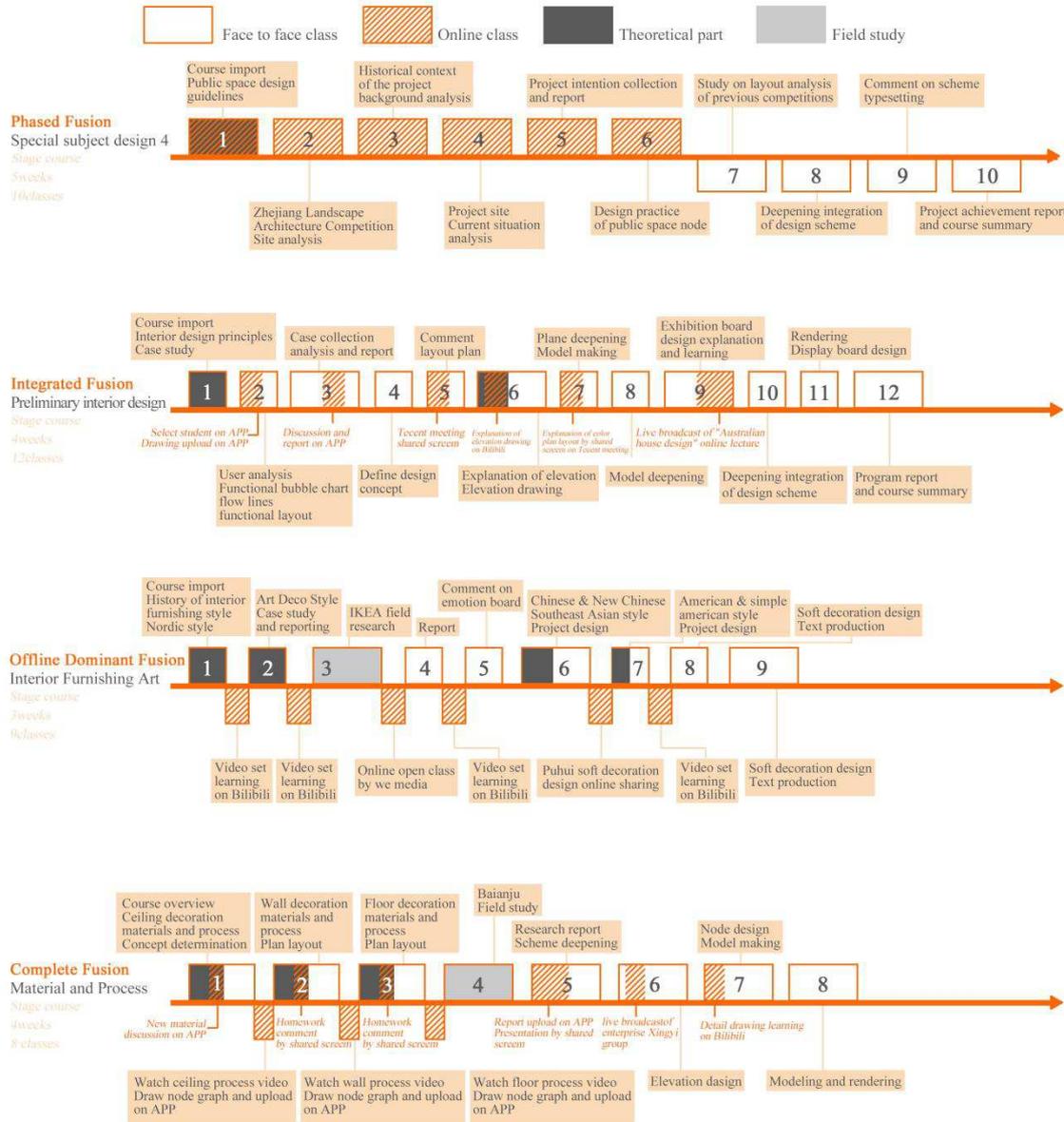


Figure 2. Teaching arrangements of different fusion forms.

Offline dominant fusion means that teaching is divided into online-offline-online three-stage teaching, in which the offline part is traditional face-to-face class, and the online part is students' independent E-learning and after-class exercises. The online learning platform is used to learn MOOC, SPOC or micro class videos recorded by teachers step by step in advance according to the teaching plan arranged by teachers. See Figure 2 for the teaching arrangement. The advantages of this integration mode are that it can further expand students' course learning time, make rational use of the flexibility of online learning, supervise and test students' learning effect through

face-to-face teaching, further improve the depth of knowledge in the process of teacher student interaction in the classroom, and increase more application and practice links of knowledge points to promote students' application of learning. At the same time, teachers can also carry out personalized teaching based on the analysis of online learning data. The disadvantage of this integration mode is that it takes up some students' spare time. If several courses are carried out simultaneously, students' learning pressure will increase sharply.

Full fusion refers to the introduction of internet teaching methods in offline classes on the basis of offline dominant

fusion mode. See Figure 2 for teaching arrangements. Under this integration mode, the boundary between internet teaching and traditional face-to-face teaching begins to blur, the two are deeply integrated, the complexity of arrangement is further increased, and the requirements for teachers and students are also higher, reflecting the trend of "Internet +" teaching mode. This mode has the advantages of integrated fusion and offline dominant fusion, which can improve the effect of online learning, improve students' sense of presence, optimize offline teaching mode, enrich teaching content, and realize individualized and differentiated teaching. At the same time, teachers can remove some online learning materials to classroom teaching, and students' online learning time can be reasonably compressed, which can also reduce learning pressure.

These four integration modes range from phased, integrated, offline dominant to fully integrated, and the integration of Internet + teaching is increasing in turn. Therefore, the horizontal comparison is made in terms of online learning effect, course learning pressure, richness of teaching activities, depth of knowledge points, complexity of instructional design and difficulty of implementing individualized teaching, as shown in Table 2. From the table, each of the four integration

forms has its own advantages and disadvantages. To select the appropriate "Internet + Teaching" integration mode, we need to consider several factors: first, students' learning ability and interest, and the effect of online learning will vary according to the background characteristics of learners [17], especially the individual's autonomous learning ability and interest in the course. Teachers should consider the learners' ability and acceptance when selecting the mode. Second, teachers' experience of "Internet + Teaching" will greatly increase the difficulty of teaching design and implementation with the increasing tightness of "Internet + Teaching". Therefore, it is easier for teachers without integration experience to choose phased integration and integrated integration. Third, the characteristics of courses of different disciplines and different natures. Relatively speaking, theoretical courses and basic courses are more suitable to adopt the integrated integration mode. Inserting various internet teaching resources in the process of teaching theories will improve students' interest and sense of learning presence. Practical courses and comprehensive courses are more inclined to choose the offline dominant or fully integrated type, so that theoretical learning can be carried out online, The face-to-face classroom will be able to better carry out practical teaching activities.

Table 2. Comparison of 4 Fusion Forms.

Object	Comparison points	Phased fusion	Integrated fusion	Offline dominant fusion	Full fusion
Student	online learning effect	poor	average	average	good
	learning pressure	low	low	high	average
	richness of teaching activities	poor	average	good	good
Teacher	depth of knowledge points	unchanged	unchanged	deep	deep
	complexity of instructional design	simple	average	complex	complex
	the difficulty of implementing individualized teaching	hard	hard	easy	easy

4.3.2. Differences in Teaching Supported by Big Data

In the teaching reform of "Internet +", big data plays an increasingly important role, especially in analyzing the differences of students' learning preferences, habits and abilities by collecting the data left by students' interactive behaviors on the user side. First, the platform conducts data modeling on students' learning experience, and presents online learning quantitatively with "experience curve"; Then, according to the collected overall data curve and individual data curve, the analysis and research are carried out from three levels: class (overall), students (individuals) and groups (groups). The overall indicators such as the total number of views, the total number of likes, the total number of messages or bullets can not be simply regarded as the evaluation of the merits of the course. Instead, the statistical data such as the number of views should be placed in the overall time flow of the total course time (i.e. the time curve of views and the time curve of likes) to analyze the students' behavior. For example, students' emotional peaks are usually achieved by sending video barrages, real-time messages, taking notes, and clicking like. Students' attention shift is usually accompanied by clicking on other pages, playing games or other software at the same time. Students' attention to a certain knowledge point usually leads to the behavior of repeatedly dragging the

progress bar, so the rumination ratio of the video can usually reflect the absorption of the knowledge point.

Teachers analyze the acceptability of knowledge points, overall interest points, and overall fatigue of reading words and images according to the number of completed tasks, chapter learning times, overall rumination ratio, and overall attention curve. At the individual level, according to the data curve of different students, regression calculation can be carried out in the overall statistical curve, so as to combine the attention curve, the memory curve of periodic learning and other indicators to analyze and study the individual differences and attention differences of students, analyze the core problems of the student from some very prominent differentiated data, and pay attention to offline teaching. At the group level, cluster analysis is carried out on students with similar behaviors, and learning groups with certain commonalities, specific learning behavior patterns and attention styles are classified. In this way, learning groups can be formed offline, so as to facilitate differentiated teaching and form a more targeted, more detailed and in-depth teaching iteration optimization scheme.

During the online learning process of *Building Structure*, the learning data of the micro course video of masonry mixed structure was intercepted, as shown in Figure 3. The record excludes behavior data such as likes, messages, barrage and

screen cuts, and only reflects students' attention to knowledge points. The overall situation is that most students can complete online learning tasks in time before class. The average time for students to learn a 14.9 minute video is 29 minutes, twice as long as the video, which is related to the teacher's assignment of learning tasks (recording learning notes and thinking problems). In the process of video design, the teacher inserted three test questions as an interactive point to test whether the students focus on learning. Only the learners who answered the questions correctly can continue to study. On the contrary, they need to play back for 2-3 minutes. From the data, it can be learned that the students' repeated playing behavior before the interactive point is obvious, indicating that there is a certain error rate in the answers. In the two periods between question 2 and question 3, the viewing behavior is relatively smooth, which can be understood as the students' high acceptance of the explanation there. In the individual analysis, it can be seen that the rumination ratio of student B is less than 100%, and it is inferred that the student has adopted the fast forward playing mode. Student K's rumination ratio is quite large. The teacher asked the student in class and learned that the slow playback mode was adopted to facilitate real-time note taking.

From the group level, students' learning types can be divided into four types: capable-of-learning type, careful-notetaking type, interest-driven type and ordinary type. Among them, students C and J belong to capable-of-learning type. The learning behavior of this student group is characterized by highly concentrated video learning, high accuracy rate of interactive answer, smooth viewing behavior and nearly 100% rumination ratio. Students A and F belong to the careful- notetaking type. The learning behavior of this student group is characterized by the high quality of notes, high rumination ratio and more time spent by carefully recording video notes through repeated retrogression. Students B, D, H and K are interest-driven type. The focus of this student group usually comes from their own interests and needs. Therefore, it can be seen that the repeated playing behavior in learning behavior often occurs in different places. For example, student D is very interested in the introduction of the types of blocks in the video, and the repeated playing behavior occurs. The rest of the students are ordinary. This group will only look back when there is an error in the interactive answer, and they will watch smoothly in the rest of the time.

Micro Class Video 05 Masonry Mixed Structure

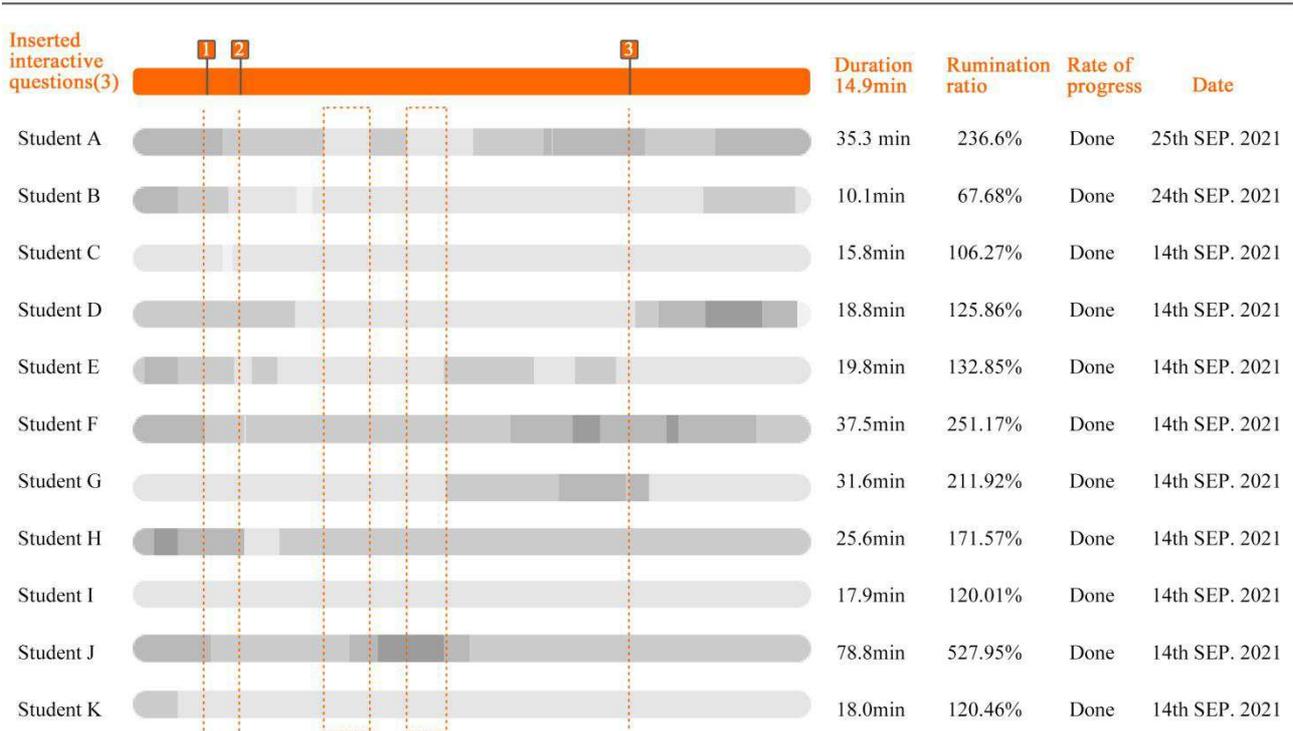


Figure 3. Analysis of some students' learning behavior data.

Through the above data analysis, teachers have adopted differentiated teaching method: paying attention to students with obvious abnormal learning behavior, and urging students with lagging learning progress by offline classroom Q&A, online testing and other links, increasing the learning challenges of students with learning ability, giving evaluation and praising students who carefully record their notes, and guide them to apply what they have learned and think about

problems. The teacher also provides rich extracurricular development materials for interest-driven students.

4.4. Diversity Strategy

4.4.1. Diversity of Educational Resources

With the development of Internet Education and the promotion of epidemic situation, online education platforms

have sprung up, with a wide variety and characteristics, such as open online courses MOOC, Ai course, Netease open courses, etc., as well as online learning live broadcast platforms Yu class and Tencent class. At the same time, education channels such as station Bilibili and Youku, which are resource platforms of long and medium video, have also begun to appear. They use the influence of the platform to attract industry leaders and famous professors to settle in and start online teaching. In addition, more and more famous schools and teachers also choose to use the Internet to hold various open online seminars, online lectures, etc. Internet education resources are showing a trend of sharing, openness and diversification, which not only changes the supply mode of teaching resources, but also requires teachers to no longer focus on how to teach a course well, but how to select the most appropriate online course, organize Internet resources in a timely and reliable manner, and skillfully combine them with their own teaching plan.

4.4.2. Diversity of Practical Teaching

The mode of "Internet + Teaching" also brings opportunities and challenges to the diversity of practice forms. First of all, in the application of practical courses, the internet teaching platform can facilitate teachers to conduct course guidance and participate in students' group discussions anytime and anywhere, even during holidays. The second is the impact on the construction of school- enterprise cooperation mode. With the blessing of the Internet, the breadth and depth of the school-enterprise cooperation have been expanded. The teachers of the enterprise can enter the classroom through the online live broadcast platform and conference platform, and give lectures, comment on assignments, and discuss the project scheme embedded in the course in combination with the internal working environment of the enterprise. In addition, the "Internet + Teaching" model has also played an important role in using alumni resources to promote student development. For example, through online sharing, alumni forums with various themes are held to introduce industry development and career planning, share postgraduate entrance examination and academic research experience, and display innovation, entrepreneurship and work achievements.

5. Conclusion

It is understandable that the changes brought about by "Internet +" have a far-reaching impact on the education industry, with college students and teachers bearing the brunt. In the face of this change, students would encounter various adaptation problems, such as the reduction of attention and dependence on traditional classes, the weariness of learning caused by the "search engine effect", or the lack of connectivity, construction and judgment of knowledge; College teachers are unable to meet the personalized, differentiated and diversified learning needs of students because they lag behind the ever-changing pace of the Internet era, or cannot provide the necessary support measures,

scientific integration methods and reliable teaching resources for the implementation of the "Internet +" model due to objective conditions. Therefore, under the "Internet +" mode, teachers should think about how to explore the "Internet + " teaching method from the bottom design level, combined with their own strengths and subject characteristics. The teaching management of colleges and universities should optimize and reform the curriculum system, talent training scheme, teaching system, teaching evaluation and assessment suitable for the "Internet + "teaching mode from the top design level, in combination with the characteristics of the university and the specialty. For the students in school, we should cultivate their selection and construction ability from the perspective of information literacy, strengthen the publicity of educational informatization, and promote the high-quality development of education under the "Internet + education" mode from the three aspects of higher education audiences, college teachers and teaching managers.

Acknowledgements

This work is supported by two programs: (1) the general project of Zhejiang Educational Science Planning Project in 2020 (NO.: 2021SCG203); (2) a major (reform) projects of higher education of Dongfang College of Zhejiang University of Finance & Economics in 2020 (NO.: 2020JK01).

References

- [1] Huang Yan, Zhou Hongyu, Hao Xiaowen, Liu Jun. Research on the Evaluation Index System of Smart Campus Construction from the View of Education Power [J]. *Modern Education Management*, 2021, (04): 75-82.
- [2] Li Jihong, Wan Qingqing, Lu Xiaojing, Yang Lan, Zeng Haijun. Development direction and suggestions of educational informatization Facing Modernization -- policy thinking triggered by "China's educational modernization 2035" [J]. *Distance Education in China*, 2021, (04): 21-30.
- [3] Xinhua News Agency. The general office of the CPC Central Committee and the general office of the State Council issued the implementation plan for accelerating the modernization of Education (2018-2022) [J]. *People's Education* 2019, (05): 11-13.
- [4] Chen Li, Zheng Qinhu, Xu Yaqian. Basic principles and general ideas of Internet driven educational reform -- theoretical and Policy Research on the innovative development of "Internet + education" (I) [J]. *Research on audio visual education*, 2022, 43 (03): 5-11.
- [5] Zheng Haibo, Wei Lanlan, Sun Yong, et al. The history, current situation and development trend of "Internet + education" in China [J]. *Information system engineering*, 2020, (05): 157-158.
- [6] Xu Yaqian, Chen Li, Zheng Qinhu, et al. The main direction of Internet promoting educational theory and academic innovation -- theoretical and Policy Research on the innovative development of "Internet + education" (V) [J]. *Research on audio visual education*, 2022, 43 (05): 5-10+25.

- [7] Voci E, Young K. Blended Learning Working in a Leadership Development Programme [J]. Industrial and Commercial Training, 2001, 33 (5): 157-161.
- [8] Driscoll M. Blended Learning: Let's Get beyond the Hype [J]. Learn Training Innovations, 3 (3): 54-56.
- [9] Li Hongmei, Lu Guodong, Zhang Jianping. Exploration on the new teaching mode of colleges and universities in the post MOOC period [J]. Research on higher engineering education, 2014, (06): 58-67.
- [10] Garrison D R, Anderson T, Archer W. Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education [J]. The Internet and Higher Education, 1999, 2 (2): 87-105.
- [11] Feng Xiaoying, Wang Ruixue. The core goal oriented hybrid learning design mode in the "Internet +" era [J]. China distance education, 2019 (07): 19-26+92-93.
- [12] Hu Yongbin, Huang Ronghuai. Learning experience in intelligent learning environment: definition, elements and scale development [J]. Research on audio visual education, 2016, 37 (12): 67-73.
- [13] Feng Xiaoying, Wang Ruixue, Wu Yijun. Review on the research status of blended teaching at home and abroad -- an analytical framework based on Blended Teaching [J]. Journal of distance education, 2018, 36 (03): 13-24.
- [14] Zhang Chenglong, Li Lijiao. On learning support service in MOOC based hybrid teaching [J]. China distance education, 2017, (02): 66-71.
- [15] Zheng Qinhuo, Chen Li, Guo Yujuan, et al. The focus of promoting the innovative development of "Internet + education" -- theoretical and Policy Research on the innovative development of "Internet + education" (II) [J]. Educational research, 2022, 43 (03): 12-17+59.
- [16] Xiao Junhong. Evaluation of student support services in open universities in the UK and its implications [J]. China distance education, 2008 (02): 74-78.
- [17] Wang Weiping, Li Wen. Regional differences and influencing factors of Chinese college students' online learning experience: an analysis based on the survey data of 334 colleges and universities [J]. Research on open education, 2020, 26 (6): 89-99.