

# Research and Practice of “M + LIF” Information-Based Teaching Application Mode Based on Teacher-Student Dual Subject

Zhao Liang, Guili Zhang\* , Yinglong Yu, Hanyue Zhang, Tongbao Hao, Gang Cao

Network and Information Center of Southwest Petroleum University, Chengdu, China

Email: kathy@swpu.edu.cn, \*zhgl@swpu.edu.cn, 201499010078@swpu.edu.cn, 201999010104@swpu.edu.cn, 200731010124@swpu.edu.cn, caogang@swpu.edu.cn

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## Abstract

Under the background of the rapid development of the current first-class course construction, digital teaching mode is the development trend of future education. How to grasp the essence of deep learning in online teaching and better integrate online learning with offline physical teaching is the direction of future exploration of universities. Based on the concept of “teacher-student dual subject”, the teaching mode of online teaching is optimized and adjusted, build give a kind of suitable under the background of the current era is suitable for the domestic large quantities of teaching and learning based on MOOC online teaching of a new generation of information-based teaching mode, and through the actual teaching application to verify the teaching effect and the feasibility and validity of the model, Promote the improvement of online teaching efficiency and quality in colleges and universities in China.

## Keywords

Teacher-Student Dual Subject, M + LIF Teaching Mode, Information-Based Teaching

## 1. Foreword

The development of science and information technology has greatly changed the traditional teaching mode. At present, under the upsurge of the construction of “first-class courses” by the Ministry of education, many colleges and universities begin to pay attention to the construction of online courses, and have gradually shown a “blowout” state in the past two years. However, the problems of online learning are becoming increasingly prominent, such as poor online learning effect, lack of face-to-face communication, poor sense of interaction, a high dro-

pout rate of MOOC, and other problems. How to use information technology to promote the integration and innovation of online teaching mode in the new era is a growing concern of educational information technology researchers and front-line teachers in Colleges and universities.

Whether teachers or students should be the main body of teaching activities has always been a controversial topic in the history of education. The modern educational theory holds that both teachers and students are the main teaching elements, and the ideal teaching activities should be the organic unity of teachers' teaching activities and students' learning activities, that is, teachers and students are independent and subjective subjects in the process of education and teaching, that is, teachers and students are double subjects. The relationship between teachers and students in the dual subject teaching mode has changed from passivity to interaction and from obedience to autonomy, so as to effectively stimulate students' interest, mobilize students' enthusiasm and improve the teaching effect. Relying on the means of information technology, build an information-based teaching mode with strong operability of "M + LIF", explore the application ways of teaching information based on teachers and students, update the teaching methods, expand the teaching vision and improve the teaching efficiency through the means of information technology.

## **2. The Realistic Confusion of Teacher-Student Dual Subject Research**

At present, domestic and foreign research on the teaching of teachers and students is mainly concentrated in the field of language learning. Because of the strong interaction of language courses, it is more conducive to the implementation of the teaching means of teachers and students, so it is favored by the researchers of double subjects. However, there is a lack of research on other courses. The reasons are that the demand for teacher-student interaction is limited by the course content is small, and the implementation of training students' high-level thinking and skills is difficult. However, the research on the teacher-student dual subject teaching model based on the general course of cultural quality is still blank.

In addition, at present, there are few kinds of research on the information-based teaching mode of teachers and students, mostly from the perspective of "Online + offline" hybrid teaching mode, and few kinds of research from the perspective of purely online courses. Although China has become the largest country in the world in terms of the number of online courses, there is still a tendency of "emphasizing quantity and neglecting quality" in the construction of online courses, and there is a lack of integration and innovative research on online teaching models in the current era.

## **3. Construction of "M + LIF" Information-Based Teaching Mode Based on Teacher-Student Dual Subject**

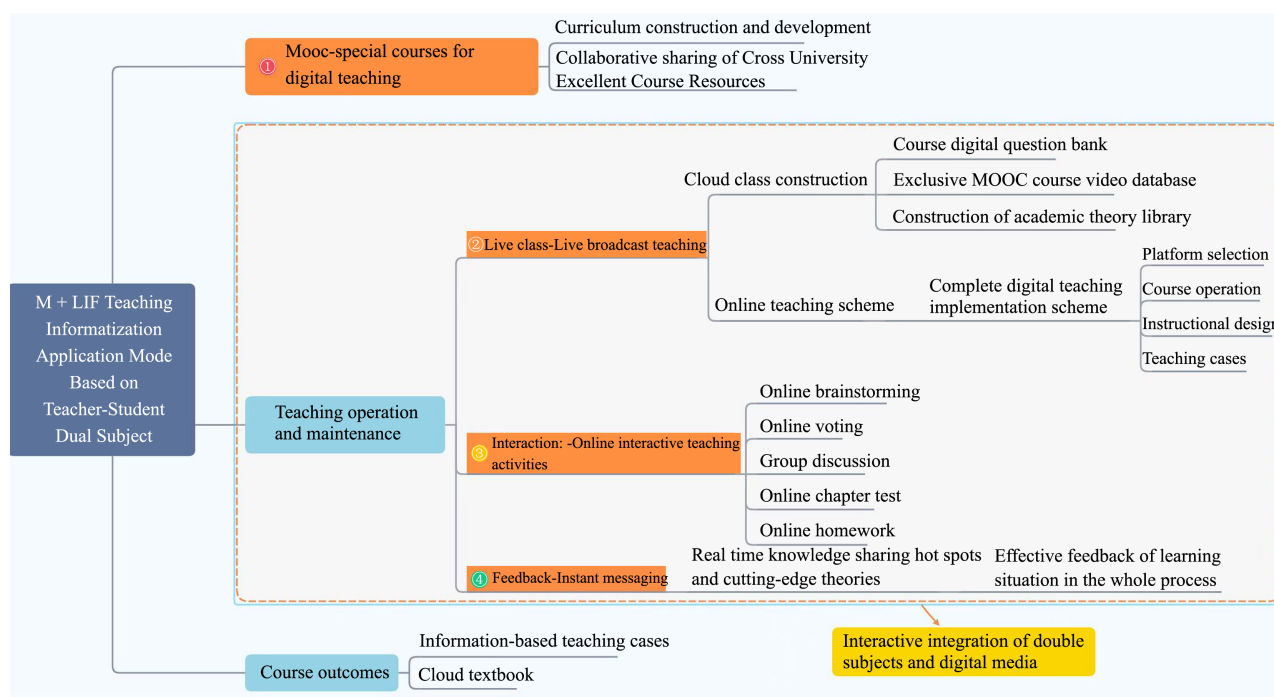
### **1) Construction ideas**

Educational technology is developing from computer-assisted instruction to the current “deep integration of information technology and subject teaching”. The “deep integration” of information technology and subject teaching includes “creating an information-based teaching environment”, “realizing new teaching and learning methods”, and finally “changing the traditional classroom teaching structure” (He, 2019). Based on the above three aspects of in-depth integration, this paper puts forward corresponding solutions, plans to build a “M + LIF” teaching mode, and explores how to build a multi pronged teaching mode to ensure quality equivalence in order to improve the quality of online teaching in the new era.

## 2) Construction model

The construction of information-based teaching mode is not achieved overnight, but a process of continuous exploration, practice, feedback and innovation. How to combine the characteristics of the times in the current new era to build an information-based application teaching model that is suitable for the vast majority of online learners, effectively helps teachers better implement “teaching” and learners better “learning”, and effectively improves the efficiency of teaching and learning is the focus of this study.

The basic structure of M + LIF information-based teaching mode based on teachers and students is shown in the following figure:



M refers to “MOOC” (① position in the figure), that is, a MOOC class. High quality digital teaching special courses are the basis and important premise for the large-scale implementation of information-based online teaching. To create a successful Mu class, we need to meet the best impression of teaching video,

cutting-edge knowledge, new information increment, clear assessment system and good community interaction. At present, the construction of “first-class curriculum” in the educational circle is the vane of the construction of Mu curriculum in full swing.

L refers to “live class” (② position in the figure), that is, live teaching. Conduct live teaching of specific knowledge according to the collected students’ learning intentions, and conduct subversive live teaching for the knowledge points lacking in the learning content of online courses. The launch of various webcast software apps has made it possible for mobile HD interactive webcast to be widely used in teaching. Through the previous questionnaire survey, we found that 82.7% of the students like the way of online interactive live broadcasting. At present, the Internet technology is gradually mature, and the network speed and signal stability of live broadcast are well guaranteed. Based on the mobile convenience and real-time feedback of teacher-student interaction, live broadcast teaching based on the mobile interactive live broadcast platform is an effective supplement to online teaching.

I refers to “interaction” (③ position in the figure), that is, interaction between teachers and students and students. A good online teaching is not only a simple placement of high-quality resources on the network, but also an organic combination of enlightening and interactive teaching forms and a variety of interactive teaching activities. Only by paying high attention to the interaction between teachers and students can teaching be unified accordingly. The mobile app for classroom teaching can be used to realize the application of interactive means such as check-in, voting, answering, testing, topic discussion, etc., and promote learners’ active learning.

F refers to “feedback” (④ position in the figure), that is, the feedback mechanism of online teaching. Feedback is a very important link in e-learning. It is an important means to test the effect of e-learning. A set of reasonable and effective e-learning feedback mechanism is established to improve learners’ sense of learning achievement. Break the communication barrier between teachers and students through multi form and multi means communication and interaction, and break the traditional “one-way play” teaching method. With the progress of the course, the satisfaction survey is carried out regularly to collect learners’ opinions and suggestions, and the course progress or teaching content is adjusted according to the learners’ learning situation.

The teaching mode of “M + LIF” is a new teaching information application mode that emerges as the times require in the era of large-scale online teaching. It can effectively solve the problems such as “poor effect of online learning”, “lack of face-to-face communication”, “poor sense of interaction” and “high dropout rate of MOOC”, which are derived from the current large-scale birth of online courses and the rapid improvement of golden course construction. It is another new exploration of the deep integration of information technology and teaching (Wei & Zhang, 2022).

## 4. Curriculum Application Practice of “M + LIF” Information-Based Teaching Mode

### 1) Course selection

This study selects the general course of cultural quality “digital photography technology and art” of Southwest Petroleum University, which is an excellent online open course in Sichuan Province. At the same time, it is open to all undergraduates and social learners of Southwest Petroleum University as a course of university credit recognition and a course for social learners. Since 2018, the course has been held on the “University of China MOOC” platform and “XUEYIN ONLINE” platform for 9 periods respectively, with a total number of more than 30,000 course candidates, more than 20 million page visits and more than 100,000 interactions. The application effect of the course is good and has great influence.

### 2) Analysis of curriculum pain points

In the past teaching practice, the course has tried to apply a variety of teaching modes based on information technology to practical teaching, and has achieved some information-based teaching results. However, there are still many things to be improved, mainly as follows:

First of all, the course content contains many new concepts and professional terms of cutting-edge photography technology. For students with poor basic knowledge, there may be problems of poor acceptance and difficult to understand, which makes it difficult for students with poor learning background to follow up the course.

Secondly, the discussion is not interactive enough. In the current discussion area of this course, although the discussion forms such as photographing topic exchange, photographing sign in, student student exchange, etc. are regularly initiated, most of them are invalid discussions. Most of the students’ one-way output for the purpose of brushing scores, and the discussion is simple and repeated pasting of the same content, lacking creative speech and effective interaction.

Thirdly, in the past teaching practice, although the method of live broadcast has been used for teaching, most of them are “just in need” cross campus distance teaching live broadcast, with the main purpose of solving the problem of long-distance classes in different campuses of the same university. The “live broadcast” designed in this topic subverts the previous live broadcast method. It will combine the learning intention screened from the feedback results of the “wish list” distributed to learners before class, select specific knowledge points for targeted live broadcast, and design a special innovative live broadcast of cutting-edge knowledge in the photography industry that is different from the existing teaching content to help learners build a complete knowledge system and stimulate their interest.

### 3) Course application of “M + LIF” information-based teaching mode

Since the autumn semester of 2021, the course teachers’ team has applied this

mode to the teaching of digital photography technology and art. The “M + LIF” teaching mode emphasizes the effective interaction and feedback between teachers and students. From the teaching design level, the teaching application under the new mode has been carried out, and the new implementation path of deep integration of information technology and the course has been explored based on the concept of teachers and students.

In view of the existing curriculum pain points, this paper puts forward effective solutions and implementation plans, and provides reference for promoting the digital teaching mode in the post epidemic era of cultural quality general education courses and more subject fields through the exploration of teaching mode; To meet the large-scale online learning and meet the cultural quality education needs of learners from different regions, different majors and different subject backgrounds; Explore a new generation of solutions to the problem of cultural quality education with a large number of students and a wide distribution area. According to the “M + LIF” teaching mode, the teaching links before, during and after class are redesigned, and different teaching methods are carried out for “technical” learning groups and “high-level” learning groups.

a) Independent inquiry mode

Take the problems in practice as the learning items, organize students to study, explore and think, obtain information from various ways, sort out and summarize information, judge and identify value, and make proper use of information.

b) Task driven mode

Determine a project, take the task as the guide, guide students to think, then innovate, and finally complete the task through various ways.

c) Situational teaching mode

Take the scene of professional learning as a project, create a real scene, let students immerse themselves, and combine theoretical knowledge with practice.

d) Team cooperation mode

The completion of the project requires the team to work together and work together to cultivate students’ team awareness and management and cooperation ability.

e) Skill training mode

Skill training can be adopted for practical operation projects that need continuous practice. According to the training items proposed by the teacher, students constantly explore, and gradually acquire operating skills according to the teacher’s guidance and guidance.

This course uses information technology to establish a real-time feedback mechanism for online learning and smooth communication. Relying on the network communication tools, the communication channels between teachers and students have been established, and a real-time feedback mechanism of “anytime, anywhere” has been built to grasp the learning dynamics of learners and respond to their learning needs at the first time. Regularly conduct satisfaction

surveys, collect learners' opinions and suggestions, and adjust course progress or teaching content according to learners' learning conditions (Yan, 2022).

## 5. Summary of “M + LIF” Information-Based Teaching Mode Based on Teacher-Student Dual Subject

The one-year “M + LIF” information-based teaching mode was applied to the teaching of the course “digital photography technology and art” in our school, and a survey was conducted for the course learner group with the theme of “digital photography technology and art M + LIF mode questionnaire”. A total of 326 questionnaires were distributed, and 301 valid questionnaires were recovered, with a recovery rate of 92.33%. Due to the particularity of online courses, it is difficult for teachers and students to have many contacts in face-to-face teaching, such as the sense of alienation between teachers and students, students' blind obedience to speak on the Internet, etc. In order to ensure the effectiveness of teaching evaluation and get a more real teaching effect evaluation, the sample characteristics of the interviewed students are analyzed (Zhou, 2021).

In terms of course cognition, among the “advanced” learning groups, 1.07% and 3.24% of the students thought the course was “very difficult” and “large”, 58.12% of the students thought the course was “average”, and 22.74% and 14.83% of the students thought the course was “relatively easy” and “very easy”. Among the “technical” learning groups, 3.89% and 5.16% of the students think that the learning difficulty of the course is “great” and “great”.

In terms of teaching content, the proportion of “high-level” and “technical” learning groups who believe that “teaching content is novel and teaching knowledge is cutting-edge” is 89.74% and 87.3% respectively, which are basically the same. In view of the “opinions on the design of knowledge points in online courses”, 51.46% and 44.66% of the students think that “knowledge points are rich and useful, and can be at the forefront of the times” and “knowledge points are basically useful and basically meet learning needs”, respectively. However, 3.72% and 0.16% of the students still think that “knowledge points are few and the content is slightly lacking” and “knowledge points are boring, old-fashioned and basically useless”. It is mainly concentrated in “high-order” learning groups.

In terms of “M (MOOC)” learning effect, 62.14% of the learners chose “it is very helpful to my photography technology”, 35.92% of the learners thought “it is generally helpful to my photography technology”, and 1.93% of the learners thought “it is not practical enough to help me improve my photography technology”, In addition, 0.1% of the learners still think that “there is no help”.

In terms of “LIF” evaluation, the voting rates of “live teaching”, “teacher-student interaction” and “online teaching feedback mechanism” were 71.67%, 92.17% and 86.09% respectively, all of which were high sub items. Learners generally recognize LIF teaching designs such as “special live broadcast”, “instant feedback”, “Photography Exhibition” and “wish list”. In terms of “your attitude towards some online activities (photo check-in activities, discussion, etc.) of this course”, 75.85% and 21.54% of the learners respectively think that they are “very



interesting and willing to participate” and “occasionally participate when they have time”, and only 2.61% of the learners think that they are “unwilling to be disturbed and unwilling to participate”.

According to the results of questionnaire analysis, it is found that learners highly recognize the “M + LIF” information-based teaching model, and believe that this model can effectively promote the learning of online courses, and effectively improve learning efficiency and learning level. Compared with the teacher-centered cramming teaching method, the “M + LIF” information-based teaching mode has greatly improved students’ participation, and the online learning atmosphere is more active. This mode provides students with a platform for diversified photographic knowledge learning, and better supports students’ operation practice, personalized learning, and ubiquitous learning.

## 6. Summary and Outlook

Under the concept of “teacher-student dual subject”, explore the specific path of the deep integration of information technology and discipline, and build a “M + LIF” information-based teaching mode based on the “teacher-student dual subject”, so that information technology can reconnect teachers and students. To verify the new teaching mode through the physical courses, reconstruct the teaching framework and teaching process, and explore the application of the new generation of information-based online teaching mode in the real online courses of colleges and universities on the basis of teachers and students, so as to provide some pioneering experience and attempt for the current large-scale first-class course construction, which is a further in-depth exploration of the deep integration of information technology and teaching.

Online teaching is constantly developing, and the research on online teaching mode is endless. In combination with the needs of social development, teachers’ self-development motivation, and learners’ needs, it comprehensively explores the path of method innovation, means innovation and mode innovation of information technology and online teaching, and puts forward the application mode of teaching informatization in higher education according to the concept of teachers and students as two subjects. The construction of the new information-based teaching mode of teachers and students should not only stay in the general courses, but should be the continuing direction of large-scale online teaching performance improvement and sustainable development in different fields and disciplines.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.



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