

Retraction

Retracted: Design and Implementation of Online Education Mode of Music Course Based on Web

Mobile Information Systems

Received 25 July 2023; Accepted 25 July 2023; Published 26 July 2023

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

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- [1] J. Yu and Y. Gong, "Design and Implementation of Online Education Mode of Music Course Based on Web," *Mobile Information Systems*, vol. 2022, Article ID 2497748, 7 pages, 2022.

Research Article

Design and Implementation of Online Education Mode of Music Course Based on Web

Jiakun Yu and Yufei Gong 

Conservatory of Music, Hunan University of Technology, Zhuzhou 412007, Hunan, China

Correspondence should be addressed to Yufei Gong; 41823093@xs.ustb.edu.cn

Received 21 April 2022; Revised 11 May 2022; Accepted 18 May 2022; Published 11 June 2022

Academic Editor: Hasan Ali Khattak

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In order to meet people's demand for music, especially the obsession of contemporary young people with music, through the design of online education mode of music course on the web, we can realize the online education of students by using the network platform, which is conducive to the reasonable arrangement of students' time and course management. With the enrichment of materials, the demand of the young generation for the spiritual world has attracted more and more attention, especially the element that can relieve human emotions, such as music, is more popular in the market among young people. The traditional music teaching mode does not pay attention to the design of music courses, only weak preaching, which makes students' interest in music appreciation not high, and online education of music courses on the web can satisfy it. The emergence of music course auxiliary teaching system based on the web enables students to find more platforms to stimulate their interests and hobbies, and bring new learning experience to students through the system, which is conducive to enriching their after-school life and improving their self-cultivation.

1. Introduction

With the popularization of computer network, the key technology of music course auxiliary teaching system based on web is designed and developed through the all-round integration of modern information technology. The music course online education system adds fresh blood to the traditional music teaching. Therefore, web's music course is the teaching mode of integrating music discipline and information technology, building a wonderful music classroom for students through information technology, and fully attract students' attention and awaken students' thirst for knowledge of learning music so as to improve their ability of music appreciation. The traditional music teaching mode does not pay attention to the design of music courses, only weak preaching, so that the concentration of students' interest in enjoying music is not high, while the online education of music courses on the web can meet students' curiosity, stimulate students' confidence and interest in music learning, provide students with high-quality teaching,

let students understand music from abstract to concrete, and appreciate the charm of music. In addition, the online education mode of music courses through the web can also broaden students' vision, increase students' knowledge, and improve students' pursuit of cultural and artistic literacy.

The research of Wu shows that the development based on web technology realizes the unity of cross platform user interface and greatly improves students' learning experience. The application of this platform provides new technical ideas for music course education and has a certain influence on the research and future development trend of network teaching [1]. Lu, with the proposal of the concept of quality education, the in-depth implementation of the new teaching concept, and the rapid development of information technology, excavated the new teaching strategy and sorted out, which has been recognized by many people [2]. Xing pointed out the integration of music teaching and ideological and political education, and the establishment of the integration system of music teaching and "ideological and political" education so as to strengthen the construction and exchange

of music “ideological and political” education teachers, and constantly improve and enhance the effect of “ideological and political” education; adopted vivid teaching methods and educational models to better mobilize students’ enthusiasm for learning; carried out activities for elegant music art to enter the campus so that students can accept the edification of classical music art; let music teaching better play the role of “ideological and political” education [3]. Jing with the continuous development of social culture and the promotion of the new curriculum reform, the attention of art content such as music has gradually increased. Basic education has begun to pay attention to music curriculum and cultivate students’ core music literacy since childhood has become the consensus of teachers. With regard to music education under the traditional mode, there are deficiencies in teachers’ experience and mastery of effective teaching methods. At present, there are some problems in the construction of primary school music teaching mode based on core literacy. Facing this situation, teachers must pay attention to curriculum practice and step up the optimization of teaching methods [4]. Liu discussed the teaching mode of online courses. The classroom teaching form has been transformed into online live teaching, giving the right of resource management and allocation to students, paying more attention to talent training, and improving students’ independent knowledge learning and self-discipline ability. Music learning in this network environment allows students to explore learning, explore culture, and develop culture [5]. Zhao said that the setting of music courses can not only cultivate students’ artistic literacy and improve their ability to appreciate beauty but also stimulate their love for life and promote the formation of their noble moral character. The online education mode of music courses on the web can smooth the moral education of music education and form excellent moral quality [6]. Pan believes that online education is gradually favored by the public, and online music education, as a part of it, has also been rapidly developed and promoted. It has broken the space and time constraints of traditional music education and changed people’s way and concept of learning music [7]. Yang et al. found that in recent years, the new circulation mode represented by e-commerce has produced great penetration and influence on the circulation of organic agricultural products in China [8]. Zhang and Lei, looking at the current situation of music teaching in colleges and universities, said that great changes have taken place in music teaching in terms of concept, method, and content. This is not the result of the influence of one factor, but the effective integration of multiple factors. The introduction and application of network technology cannot be underestimated, and it contributes to the realization of aesthetic education function. Music education in colleges and universities in China has trained excellent comprehensive talents and achieved good development [9]. Yang et al. analyzes the application of PID controller in the design of ship antirolling tank controller and puts forward the design method of optimizing PID controller. The simulation experiment shows that the improved and

optimized variable parameter PID controller can effectively control the ship rolling angle and fin angular velocity and improve the antirolling efficiency [10].

2. The Design Background of the Online Music Education System

With the rapid development of computer multimedia and network technology, the traditional music teaching mode cannot adapt to the development of the times. We need to recognize the reality. We should focus on the future of students and cultivate their creativity, self-confidence, concentration, cooperative spirit, response ability, and full personality development. Art education is an important part of the basic quality of quality education, and music education is an important form of art education. Therefore, music education needs to be optimized and upgraded. In the traditional music teaching mode, the teaching content is single, the teaching methods are old, the teaching design is lack of interactivity, and the music class is not paid attention to. At the same time, music teaching is also in an abnormal atmosphere. Students’ lack of emotional resonance leads to the negative atmosphere of music teaching classroom. Based on this situation, how to use science and technology to improve music teaching mode and improve students’ learning interest has become an urgent problem to be solved. Therefore, the most important thing is to deeply realize that we must change the mode of traditional music education. According to the social needs, the online education mode of online music courses came into being to build a music online education system, effectively promote the reform of online education mode of music courses, and provide more and more high-quality talents for the cause of culture and art. The Internet has the advantages of large amount of information, wide resources, and fast access to information. It is an indispensable educational resource in music teaching. Through various rich multimedia learning resources, multidimensional communication platforms, and flexible learning methods, the quality of music education in school has improved and let students unknowingly improve and develop their interest in music, skillfully lead students into the palace of music, and gradually form a good habit of appreciating music. In the music online education system, full play has been given to the guiding role of teachers, reflect the dominant position of students, and fully promote students’ autonomous learning. According to the actual situation, students can arrange the learning plan, master the learning progress, and check the learning effect under the guidance of teachers so as to give full play to students’ initiative and enthusiasm and cultivate their creativity and exploration ability. At the same time, students’ comprehensive abilities such as music literacy and art appreciation level have to be improved.

3. The Design Principles of the Online Music Education System

With the fact that music specialty courses are compulsory professional practice courses in colleges and universities, the

gradual expansion of enrollment scale, the increase of professional direction, and the shortage of teachers through the development and application of the system, we can better promote the intellectualization, networking, automation, efficient, convenient, and accurate development goal of music specialty skill course scheduling. This will greatly improve the scientific, standardized, information-based, and paperless level of teaching management of the professional course. Nowadays, online courses have become the core resources of all kinds of education, which not only has made considerable achievements in quantity but also has the incomparable advantages of traditional offline courses. However, there are many problems in the practical application of online courses, such as ignoring the differences of cultural background, single form of interaction, ignoring the effectiveness of teaching, and lack of attention to scholars' emotion. Yanmin pointed out that the online teaching task of music course is difficult to complete, the teaching effect is difficult to monitor, the curriculum resources are not systematic, the level of teachers is inconsistent with the demand, and the online education guarantee system is imperfect. Countermeasures should be put forward from the perspective of improving the construction of teaching platform, teachers, and online education quality guarantee system [11]. Yang et al. has reported that the mobility of transistors based on new D-A polymers has generally exceeded $1 \text{ cm} \sim 2 \text{ v}^{-1} \text{ s}^{-1}$, exceeding the level of amorphous silicon transistors (the highest value has even been close to $100 \text{ cm} \sim 2 \text{ v}^{-1} \text{ s}^{-1}$). Moreover, these conjugated polymer transistors also show ultrahigh stability, so they have practical value in a real sense. More importantly, these D-A polymer materials have nearly amorphous [12]. Yang and Song said that the online distance education system is an important method to realize educational equity. In the research, they expound and discuss the common obstacles, causes, and manifestations in learning, and puts forward the method of contacting learning disabilities in terms of hearing, vision, language, and expression obstacles. At the same time, it also analyzes the barrier-free platform design principle of the online education system, and gives the system design concept of learning through transferring obstacles [13]. Yang and Zhang said that with the change of world economic pattern in recent years and the trend of rapid development of China's economy and technology, the advanced degree of mechanical technology will become the basis for the survival and the key to sustainable development of China's manufacturing industry in the future [14].

Bingyu analyzed the feasibility of online music education, enhanced confidence in online music education, and looked for a road conducive to the development of music teaching information [15]. Yang et al. studied the photocurrent model based on solar cell and photodiode. Combined with inorganic photosensitive transistor, the photocurrent model suitable for photosensitive organic field effect transistor is derived [16].

In this article, the online education mode of music course based on the web is discussed, which mainly follows the following principles: (1) the integrity of the content system, which constructs a more complete teaching system

for students' preclass preview, classroom teaching, online homework, online test, and question answering after class. (2) The principle of openness in the learning process because the architecture of online courses is open, which makes it more extensible and relevant. (3) Embodiment of the principle of learning individuation and improving students' musical ability, aesthetic consciousness, and aesthetic interest through various connections between music and life, emotion, culture, and science so as to promote students' personalized development and improvement. (4) According to the principle of interactivity, we should establish various interaction mechanisms and a number of activities in which human-computer interaction and teacher-student interaction coexist.

4. The Demand Analysis of the Online Music Education System

4.1. Analysis of the System Function Requirement Framework Diagram. With the improvement of material level and the gradual improvement of people's material living standard, people's full demand for the spiritual world is equally important, and the higher the educational level, the more attention they pay to music, which is a product of the combination of science and art. In particular, the young generation's obsession with pop music regards music as a necessary leisure entertainment in entertainment life. The enthusiasm of the market makes music become consumer goods so that music can be transformed into commodities and even extends relevant music education. Ruican et al. introduced the vocational education curriculum technology of different modules in the research on the modular curriculum of vocational education and training system [17]. With the development of science and technology, music education is not only limited to classroom interaction but also online education attached to the network platform. This way is not only convenient for the reasonable arrangement of the audience's time but also the audience's learning and assessment can be carried out on the network to improve the teaching efficiency. The specific functions of online education system are shown in Figure 1:

In Figure 1, the education system develops a user management module, and establishes relevant modules such as online question answering, online examination, online class teaching, electronic materials, teaching plan, teaching acceptance, and course introduction below to provide students with preschool consultation and course teaching direction so that students can understand the content of their courses later so as to realize students' recruitment, and solve questions and learn online students' courses. In addition, the establishment of background management module can guide users to download relevant content for learning and give users a pleasant experience.

4.2. Functional Requirements Analysis. The system develops the user management module and establishes the online course introduction so that users can choose their own needs according to the course introduction. The online outline is

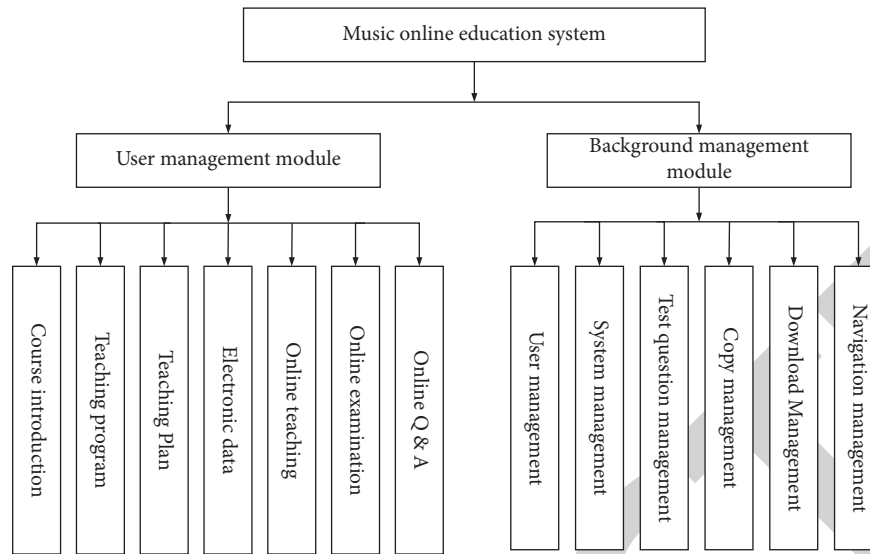


FIGURE 1: System functional framework diagram.

the teaching plan of music course. Compared with the previous course introduction, it is more specific and can reflect the summary of the main content of music teaching. In the traditional music teaching mode, the teaching content is single, the teaching methods are outdated, the teaching design lacks interactivity, and music lessons are not taken seriously. At the same time, music teaching is in an abnormal atmosphere, and students lack emotional resonance, which leads to a negative atmosphere in the music teaching classroom. Based on this situation, it is necessary to deeply realize that it is the most important thing to change the traditional music education mode. According to the needs of the society, the online education mode of music courses on the web.

According to the teaching plan, we can make teaching plans and carry out teaching from shallow to deep for the music system. Electronic materials are to provide students with relevant materials to review the learning content so as to better consolidate the learning content. Online teaching can provide the content of online teaching and interact with students directly. Online examination is to assess the learning situation of students through online learning, and give correction and evaluation. This link is relatively important and is a summary of students' learning situation. The online question answering module provides guidance and answers to students' doubts, realizes the interactive function with students, and supports the mode of converting data into pictures. Using Internet terminals for online teaching, now the convenience of wireless network allows people to use electronic products for online music learning at any time, which is convenient for students to fill their spare time. The background management module manages users, builds modules according to users' behavior, and guides users to use them.

4.3. Analysis of the System Software Framework Diagram. The emergence of Internet platform makes people get great convenience. It has a large amount of information, wide

resources and more functions. According to the needs of the market, the online education mode of music courses on the web came into being to build a music online education system, effectively promote the reform of the online education mode of music courses, and transport more and more high-quality talents for the cause of culture and art. The main purpose of the system is to transform the information into a view and show it to the user. In this process, the view is responsible for showing the information to the user and dealing with the interactive function between the user and the user, and forms the interactive interface of the system through the controller. At the same time, it has the functions of data storage and processing, so as to make the maintenance of the system more convenient.

As shown in Figure 2, the software of the system uses SSH framework to support the operation of the system. The design layout of the whole system is relatively simple and easy to maintain and use. Moreover, the data storage and processing of web applications need the support of server terminals. To improve the operation efficiency of the system and consider the management of users, different operations will be given to different computers for execution. At present, the popular web application in the market is a three-tier decentralized architecture, which is mainly composed of three layers, including user interface layer, operation logic layer, and data processing layer.

5. Performance Test Data and Analysis

5.1. Analysis of Performance Test Data When Different Numbers of Users Are Online Simultaneously. In the design of web course teaching, we can establish a variety of interactive modes, which can not only interact synchronously but also communicate asynchronously. In the process of course teaching, the difficult points of learning content are set up, such as method guidance and train of thought analysis of school task activities. During online tutoring and Q&A, teachers can reply in time through the forum and give

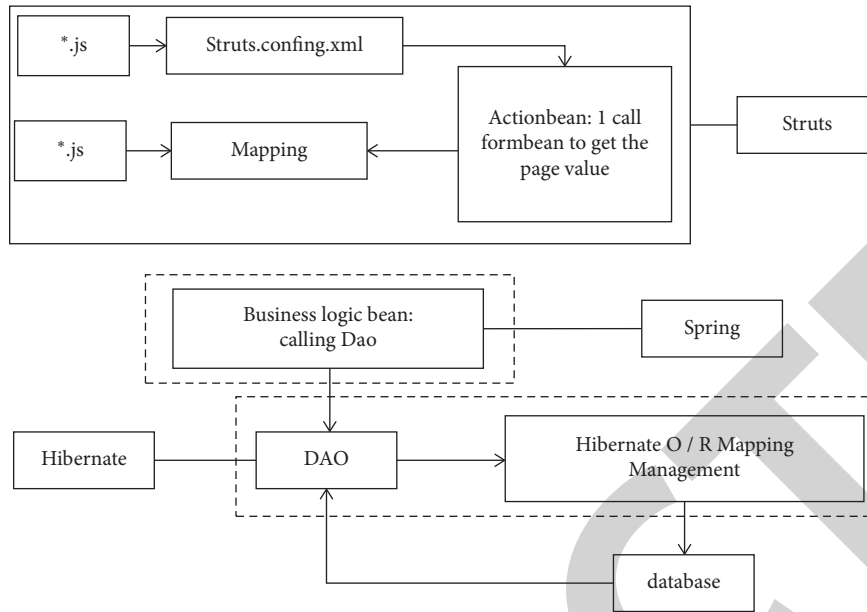


FIGURE 2: System software framework diagram.

timely correction guidance to students' online homework so that students can have a more detailed understanding of their learning situation. The online education mode of music course based on the web can realize the sharing of music teaching and learning resources, effectively promoting the reform of music course teaching mode. Through the simulation test of the performance of different number of users online at the same time, the following data are obtained, as shown in Table 1:

In Table 1, 200, 500, 800, and 1000 users are compared according to the test data. It shows that when there are 200 users, the IO occupancy rate is 10%, the memory occupancy rate is relatively low, there are fewer data packets, and the average feedback time is also relatively small. The test index of 1000 person hours has improved significantly; especially, the packet value has increased significantly. In this case, the feedback time has only increased slightly, the overall difference is not obvious, and the performance is relatively stable.

The visualization of the performance of different numbers of users in Table 1, is given in Figure 3.

As shown in Figure 3, it shows the performance test comparison when different numbers of users are online at the same time. When the number of users is 200 and 800, the feedback takes less time and is relatively stable. When the number of people reaches 1000, the data packet value doubles and the feedback time-consuming increases significantly, which is relatively stable. It can be seen that the advantages of web music course online education mode are obvious.

5.2. Response Speed Analysis of Different Modules. The response speed of the online education system of the music course is tested under high load. The loader wheel tool is used to simulate the online communication scene of

multiple users running at the same time, and the average and maximum time-consuming of each module of the system are recorded for analysis and discussion. The test results of 30, 60, and 200 people are shown in Table 2.

In Table 2, through the function test and unit test of the network teaching system, the application system meets the design requirements. When the number of users is 30 and 60, the system takes less time on average and runs stably. When there are more than 200 online users at the same time, the system efficiency is significantly reduced and the response is relatively slow. In order to more intuitively compare the response speed of different modules when different numbers of users are online at the same time and to visualize Table 2, Figure 4 is given.

As shown in Figure 4, it shows the comparison of response speed of different modules when different numbers of users are online at the same time. When the number of users is 30 and 60, the response speed is relatively fast and relatively stable. When the number reaches 200, the response speed is relatively slow and the efficiency is relatively low, but the overall situation is relatively stable. Through the functional verification of the system, the multiuser test data are obtained, and the design meets the system requirements. Through detailed testing, problems in design and implementation are also found, and the system needs to be optimized in more detail.

6. Summary

With the improvement of people's living standards, it is necessary for people to pay more attention to entertainment and leisure, cultivate their interests and hobbies and increase their self-cultivation. Web-based online education mode of music courses came into being. Constructing online education system of music can effectively promote the reform of online education mode of music courses and send more and

TABLE 1: Performance test data table when different numbers of users are online simultaneously.

Subscriber number	Test specification				
	IO occupancy rate	Memory share	Packet increase	Average feedback time	Maximum feedback takes time
200	10%	300 M	1224	3.1	4.4
500	50%	469 M	2235	4.8	5.7
800	60%	538 M	3421	4.9	6.1
1000	54%	634 M	45231	6.2	8.2

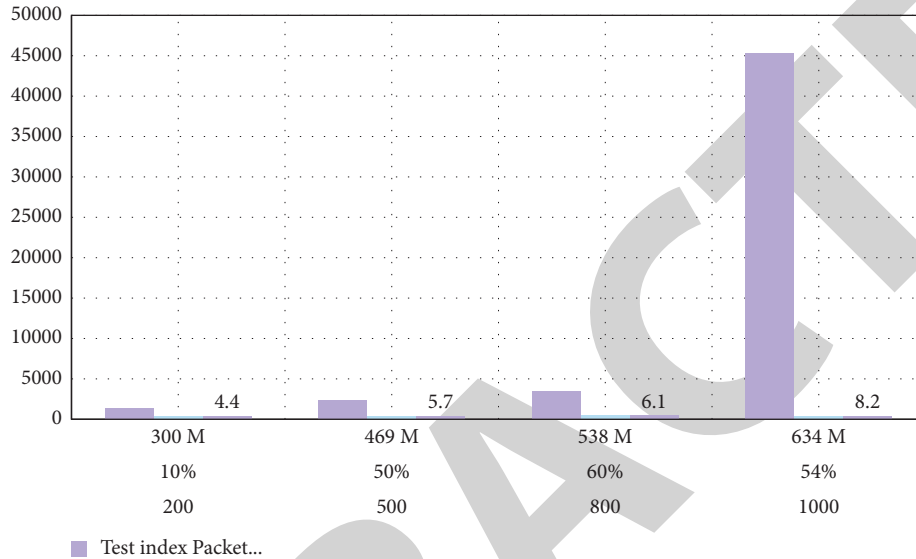


FIGURE 3: Visual diagram of performance tests when different numbers of users are online simultaneously.

TABLE 2: Response speed data table of different modules in multiple users.

Subscriber number	Landing module		Online communication module		Online teaching module	
	Average time to complete (s)	Maximum time-consuming amount of business completion (s)	Average time to complete (s)	Maximum time-consuming amount of business completion (s)	Average time to complete (s)	Maximum time-consuming amount of business completion (s)
30	1.024	2.301	1.234	2.354	1.891	3.124
60	4.231	6.981	3.104	6.344	5.123	8.231
200	5.102	9.324	5.127	11.233	6.754	13.214

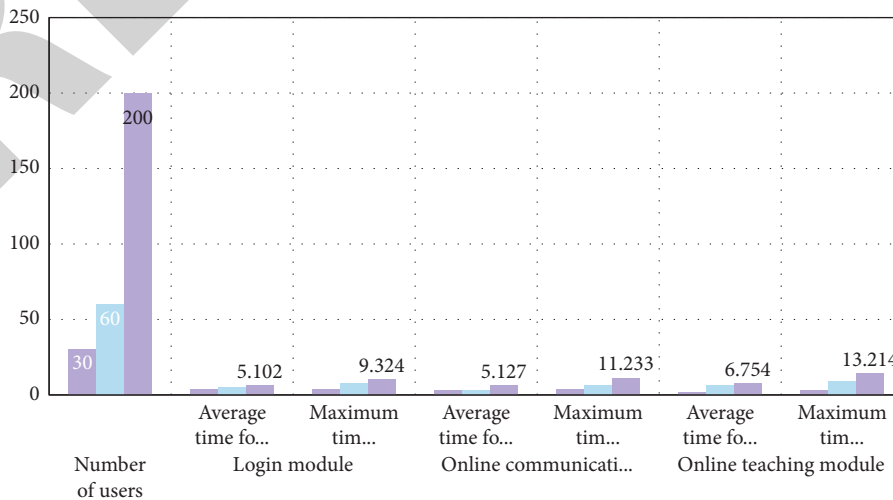


FIGURE 4: The response speed of different modules when multiuser is viewable.

more high-quality talents for cultural and artistic undertakings. In particular, artistic hobbies can not only relax themselves after the pressure of life but also help people sleep, which has become a relatively popular hobby. At the same time, the Internet brings many conveniences to people. Its multiple advantages, such as large amount of information, wide resources, and fast access to information, provide an educational platform for online education. Through various rich multimedia learning resources, multidimensional communication platforms and flexible learning methods, we can improve the quality of music education in school, stimulate students' interest, curiosity, and desire to explore music, master the basic knowledge and preliminary skills of music, and gradually form a good habit of appreciating music. The emergence of the music course auxiliary teaching system based on the web enables students to find more platforms to stimulate their interests and hobbies, and bring students a new learning experience through the system, which is conducive to enrich their after-school life and improve their self-cultivation. Music has no national boundaries. The audience is regardless of age. The pursuit of beauty is everyone's right. With the progress of science and technology, I believe people will find more learning modes for concerts in the future.

Data Availability

The data underlying the results presented in the study are available within the manuscript.

Conflicts of Interest

The authors declare that there are no potential conflicts of interest in the manuscript.

Authors' Contributions

Starting with the development history of the value orientation of music curriculum, this paper summarizes the characteristics of the value orientation of music curriculum in different stages.

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