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Research Article

Analysis on the Application of Internet Multimedia Technology in College Music Education

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In order to improve the effect of college music teaching, this paper combines Internet multimedia technology to construct a college music intelligent teaching system and uses the DASH multihypothesis framework to improve the transmission effect of Internet multimedia. Moreover, this paper manages the teaching resources generated in the process of music teaching and collects these resources into the library. The dynamic addition and editing of classifications are realized in the background, which is convenient for easy expansion and flexible adjustment of classifications. In addition, this paper combines the actual needs of music teaching in colleges and universities to construct the system function and get the system frame structure and work flow. Finally, this paper verifies the system of this paper in conjunction with experiments. The analysis shows that Internet multimedia technology has good effects in college music education, can effectively handle various resources of college music teaching, and can effectively improve the efficiency of college music education.

1. Introduction

Music education in colleges and universities has gone through a fairly long period of development. In this process, the development of music education once encountered many difficulties. Therefore, when every musician develops music teaching, he must first let the students understand the development context of music education. This allows students to fundamentally realize the difficulty of music development and devote more effort to learning music in the next step [1]. In its infancy, the biggest characteristic of music education in colleges and universities was its rapid development [2]. In its infancy, although the development of music education in colleges and universities was also disrupted by the society and was forced to be interrupted for a time, a series of music-loving workers persevered in the society, loved music, and insisted on promoting music education, which allowed the development of music education to continue. It is these people who make college music education work gradually on the right track. After that, college music education has entered a stage of rapid popularization. At this stage, many people released their love of music in their hearts and invested a lot of effort in the construction of hardware facilities and the cultivation of teachers [3].

Music educators are committed to continuously enriching the content of the curriculum, so that music education has been valued by many people. During the period of vigorous development, music education in colleges and universities has undergone great efforts to rectify and reform. With the rapid development of the economy, people's quality of life has been significantly improved, and more and more people are pouring their enthusiasm into music education. On the road of art development, we will encounter a series of problems more or less. Therefore, in the face of many problems in the current music teaching process, relevant workers need to carefully analyze the situation and integrate the educational reform and innovation concepts, so that the comprehensive quality of each music student can be greatly improved. At present, there are certain problems and difficulties in music teaching in colleges and universities, and there is a bottleneck on the road of teaching reform, which is not optimistic. First of all, in the music teaching of colleges and universities, some education administrators are deeply influenced by traditional teaching ideas, and they do not fully agree with the current development trend of international music, and their ideological concepts are relatively conservative. This has brought certain obstacles in the process of developing and reforming music teaching. Secondly, in the process of organizing college music competitions or cultural performances and other activities, college educators did not pay attention to them, resulting in a lack of enthusiasm and attention from students to these music activities and competitions. Third, in terms of teaching concepts, teachers and students have not completely established new teaching concepts, and the concepts need to be innovated, which makes it difficult to implement new music teaching methods in the teaching process or has little effect. Finally, the weak faculty is also an important reason why the reform of music curriculum in colleges and universities is not optimistic. Teachers play an important role in leading students to learn music and cultivate new music talents. Therefore, only with abundant teacher resources can we ensure the vigorous development of music education. In addition, the lack of perfect music teaching facilities is also one of the reasons that hinder the development of music teaching in colleges and universities. The investment of colleges and universities in this aspect has not done what they should. Instead, they use old or even outdated music equipment for teaching. This kind of music class itself lacks characteristics and attractiveness, so it cannot guarantee students' learning and innovation. Music education reform is very unfavorable.

This article combines Internet multimedia technology to study the methods of college music education, builds an intelligent system, changes the traditional college music teaching mode, and provides modern music teaching effects.

2. Related Work

Literature [4] proposes that in order to adapt to the rapidly developing society, education is also required to improve efficiency and quality accordingly, and one of the effective ways is to properly apply multimedia technology to education and teaching activities. With the rapid development of electronic information technology, multimedia technology has become more and more widely used in the field of education and teaching [5]. Literature [6] proposes to stimulate students' subject consciousness and improve students' enthusiasm for learning. In order to adapt to the rapidly developing society, education is also required to improve efficiency and quality. One of the effective ways is to properly apply multimedia technology to education and teaching activities.

With the rapid development of electronic information technology, multimedia technology has become more and more widely used in the field of education and teaching. From the initial application of audio-visual technology to the current integrated application of multimedia technology, the teaching content can be changed from static to dynamic and difficult to easy. Students' subject consciousness is stimulated, and students' enthusiasm for learning is improved [7].

Literature [8] analyzes music teaching in modern colleges and universities and proposes to stimulate students' subject consciousness and improve students' learning enthusiasm to evaluate, but there is no relatively objective, correct, and scientific evaluation. For example, some students will have some unconscious little movements when singing; their necks are stretched forward or their heads are lowered when they sing, some tilt their heads when a high pitch is played, their mouths are crooked, and their eyes are fixed on the ceiling when they utter. When performing on the stage, you may unconsciously beat the beat with your hands, your knees will shake and other bad habits, or the rhythm and speed of the musical work may be sung wrong. Because it is an unconscious action, when the vocal music teacher is correcting, the students will often have psychological distress or doubts, which will lead to a crisis of trust between the two sides of the teaching, and then affect the classroom quality of vocal music teaching [9]. The video and audio recording function in multimedia technology can record and play back students' vocal singing or stage performances. It is a way for students to objectively evaluate their singing performance as a bystander, analyze their own problems in the singing process, and make them in the singing process. Continuous adjustment and correction under the guidance of the teacher can not only make the two sides trust each other but also improve the teaching efficiency, objectify and clarify the problems that have been neglected by students' subjectivity, and then improve the quality of vocal music classroom teaching [10].

The traditional vocal music teaching mode can be roughly summarized as "teaching by words and deeds" and "teaching by heart." That is to say, the vocal music teacher leads the students to start the vocal music learning journey by explaining the principles of singing and vocalization and their own demonstration. The first time students learn vocal music is by imitating the vocal music teacher's voice [11]. For example, in traditional music learning, the master sings a sentence and the apprentice sings a sentence; the master performs an action, and the apprentice learns to perform an action, imitating and learning little by little. However, with the rapid development of social science and technology and information networking, there are more ways to learn vocal music. Through the multimedia technology information network, you can enjoy operas, art songs, and so on sung by famous singers and understand the different singing styles and styles of singers. Musical works are rich in individual melody processing and are continuously learned and imitated [12]. You can also see the videos of many famous vocal music educators' open classes of vocal music through the multimedia information network and learn the excellent and advanced concepts of singing and vocalization according to the audio and video and keep pace with the times. Of course, this series of learning not only includes students but also vocal music teachers, who are the leaders of vocal music teaching, can continuously learn and understand excellent vocal music works or opera excerpts of famous singers through the multimedia technology network, and then improve and perfect their own vocal music [13].

Before singing a vocal work, it is very important to understand the background of the work in detail. The

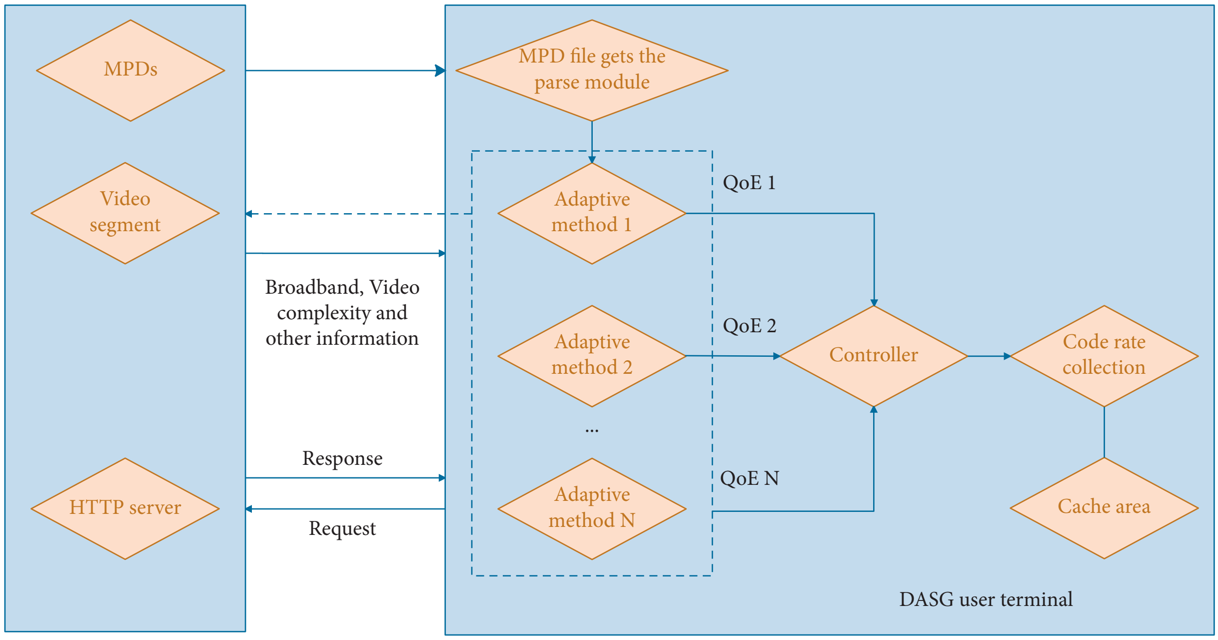

Figure 1: The structure of the DASH multihypothesis framework.

background of a vocal work can be roughly divided into the social background of the era in which the musical work was created, that is, the political, economic, and cultural background [14]. If these backgrounds are explained to students in detail and accurately by vocal music teachers, the amount of information is large, it takes up a long time in teaching, and students may not be able to fully understand and master the information. Therefore, the creative background of vocal music works can be made into slides. Through the slides, a series of related information such as text, pictures, data, audio, and video are closely combined and comprehensively displayed to the students, which is conducive to shortening the explanation time and improving the students' performance. The efficiency of the classroom broadens the students' horizons, enhances the students' interest in learning, and further improves the quality of teaching [15].

3. DASH Multihypothesis Framework

Internet multimedia technology needs to ensure the reliability of file transmission. Therefore, this paper uses the DASH multihypothesis framework to improve the transmission effect of Internet multimedia.

The structure of the DASH multihypothesis framework is shown in Figure 1. The framework consists of two parts: the method set and the method controller. The method set is composed of a variety of rate adaptive methods. Each time the client makes a decision to request the download rate, it only chooses one of the methods that can make QoE reach the best. For the first few decision moments (each decision moment corresponds to a requested video segment), we choose a specific adaptive method by default. At the subsequent decision-making moment, the method controller will switch to select one of the methods. The request sent by the currently selected method is the "actual request," and the other methods that are not selected perform the "virtual request," respectively (no request is actually sent to the server; only the request process is simulated). At the same time, other methods in the method set module use the current system information (estimated throughput, current buffer length, and video complexity) obtained by the actual request to update their own virtual buffer length and model parameters and calculate the corresponding QoE.

The method controller will always check the status of all rate adaptation methods in real time and select the adaptive method that can achieve the maximum QoE. The following specifically introduces the two control methods we proposed in the method controller module: InstAnt Method Switching (IAMS) and Inter Mittent Method Switching (IMMS) [16].

Figure 2 is a schematic diagram of the process of the real-time switching algorithm.

The decision-making selection at time f will be based on the statistical average of the instantaneous return function values ($R_{w\ d}$) of the N requested video segments before the t-th segment (which can also be called "windowed comparison," and the window length is N for judgment). The method controller will select the adaptive method corresponding to the largest statistical average $\overline{R}_n$. The control algorithm is to make decision choices for the current video segment, so we call it a real-time switching algorithm. The statistical mean of the instantaneous return function value $R_{w\ d}$ is calculated as follows [17]:

$$\overline{R}_n = \frac{\sum_{t-n+1}^{t} R_{wd}}{n}. \quad (1)$$

In the case of poor channel environment, real-time switching methods may result in frequent method switching. However, when a learning adaptive method is used for a long time, the method can achieve its best performance as much as possible and obtain better QoE. Therefore, we propose an intermittent handover algorithm. In this method, the

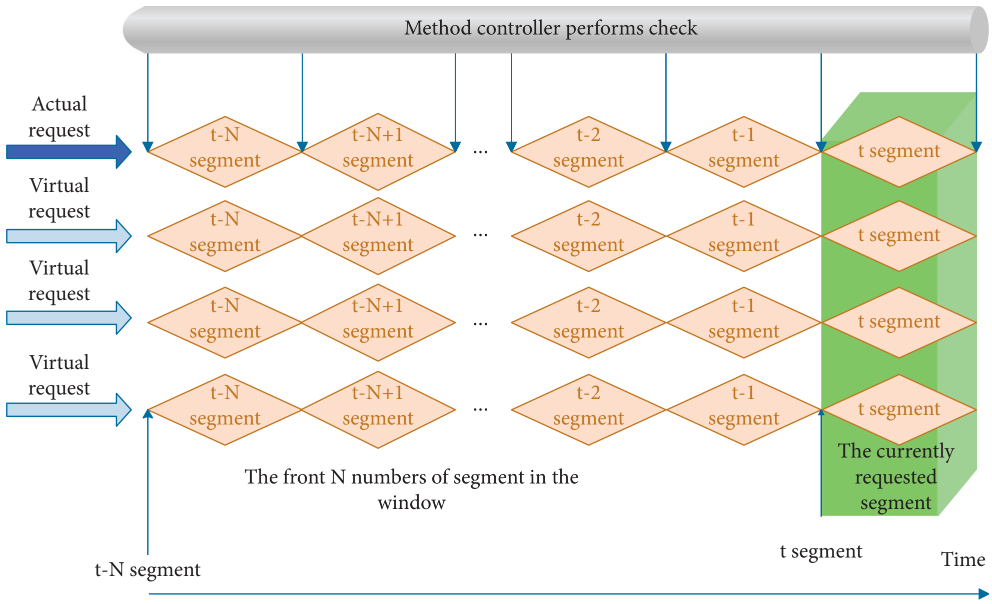

Figure 2: Schematic diagram of real-time switching process.

method controller will intermittently check the product value $p_{\text{product},i}$ [18]:

$$p_{\text{product},i} = p_{\text{anrd},i} \times p_{\text{rato},i}. \tag{2}$$

Among them, $p_{\text{arwd},i}$ represents the average return value of method i and $p_{\text{ratio},i}$ represents the percentage of the maximum return value obtained by method i in the first N segments. Finally, the method controller will select the adaptive method that can achieve the maximum product value to request the next N video segments (that is, the current N video segments will use the same adaptive method). The decision-making process is shown in Figure 3. This control algorithm is to make decision choices for the current IV video segments, so we call it an intermittent switching algorithm.

The quality of user experience refers to the user's experience when watching the client video, and it is quantified into a comparable value to evaluate the quality of the user experience. At the same time, we can apply it to the bit rate adaptive algorithm to get a better quality of experience. The general QoE model usually mainly considers three main influencing factors including video quality, quality fluctuations, and playback interruption. Three general QoE models will be introduced as follows:

(1) Considering the four main factors that affect QoE, the QoE model is defined as follows:

(1) The average video quality (the average quality of each segment of all received videos) is as follows [19]:

$$\frac{1}{M}\sum_{k=1}^{M} q(R_k). \tag{3}$$

(2) The average quality fluctuation (the amplitude change of the quality of the received video segments before and after) is as follows:

$$\frac{1}{M-1}\sum_{k=1}^{M-1} \left|q(R_{k+1}) - q(R_k)\right|. \tag{4}$$

(3) The rebuffering event (playing interruption) is as follows:
If the download time $(d_k(R_k)/C_k)$ at time k is greater than the playback time of the buffer area, the playback will be interrupted; that is, a rebuffer event will occur. Therefore, during the downloading process of all video segments, the total interruption time can be expressed as follows:

$$\sum_{k=1}^{M}\left(\frac{d_k(R_k)}{C_k} - B_k\right). \tag{5}$$

(4) We assume the playback start delay T_s (here, assume $T_s \ll B_{\max}$).

Users may have different preferences for the four influencing factors. Therefore, by weighting and summing the above four parts, the QoE of M video segments is defined as follows [20]:

$$\begin{aligned} \text{QoE}_1^M = {} & \sum_{k=1}^{M} q(R_k) - \lambda \sum_{k=1}^{M-1} \left|q(R_{k+1}) - q(R_k)\right| \\ & - \mu \sum_{k=1}^{M}\left(\frac{d_k(R_k)}{C_k} - B_k\right)_+ - \mu_s T_s. \end{aligned} \tag{6}$$

Among them, λ, μ, and μ_s are the nonnegative weighting parameters corresponding to the change of video quality, playback interruption time, and playback start delay, respectively. A small λ value indicates that the user is not too concerned about the fluctuation of the video quality. Compared with other parameters, a large μ value indicates

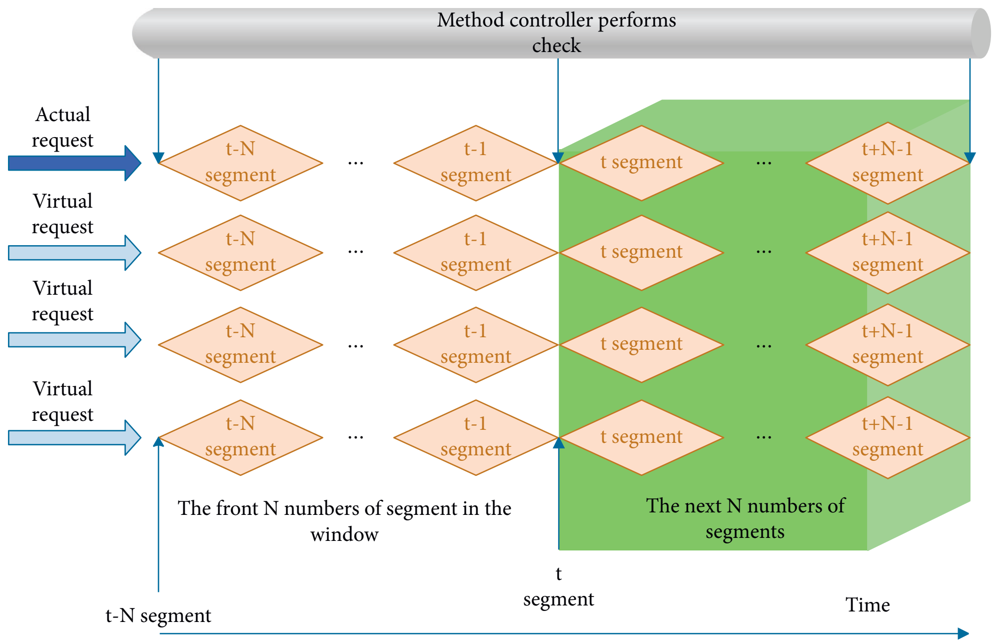

Figure 3: Schematic diagram of intermittent switching process.

that the user is greatly affected by the interruption of playback. In the case that the user pursues a low playback start delay, we set a large μ_s value to meet the user's requirements.

In short, the definition of this QoE model is very simple and universal, which allows us to model different influencing factors according to the preferences of different users.

This model QoE includes three aspects of video playback: (a) the quality of the average video segment, (b) the video playback is interrupted, and (c) the video quality fluctuation. The following are the formula expressions of these three aspects:

(a) The quality of the average video segment is as follows:

$$Q = \frac{1}{M \cdot q_{\max}} \cdot \sum_{j=1}^{M} q_j. \tag{7}$$

(b) The interruption of this video playback is as follows:

The author of this section considers the frequency f_F of the interruption and the average duration of the interruption f_T:

$$F = \frac{7}{8} \cdot \frac{\ln\left(f_F + 1\right)}{6} + \frac{1}{8} \cdot \frac{\min\left(f_T, 15\right)}{15}. \tag{8}$$

(c) This video quality fluctuation is as follows:

$$S = \frac{sw_{\text{number}}}{M} \cdot \frac{sw_{\text{deph}}}{\left(q_{\max} - q_{\min}\right)}. \tag{9}$$

Among them, M is the total number of segments of the requested video and sw_{number} and sw_{drphh}, respectively, represent the number of video quality fluctuations and their average bit rate fluctuations.

Finally, the \$Q o E\$ metric constructed using the linear combination of these three aspects is as follows:

$$\text{QoE} = 4.85 \cdot Q - 4.95 \cdot F - 1.57 \cdot S + 0.5, \tag{10}$$

where QoE is a concept of subjective perception of video quality, which requires consideration of the overall quality of consumer perception of video services. Their QoE model is also mainly affected by three key factors, that is, the requested video quality, the switching frequency of the video quality during playback, and the re-caching event. A fixed playback delay of 10 s is used, a total of M video segments are requested, and the segment length is τ. The detailed information of each component in the QoE model is as follows [21]:

(a) The quality of the average video segment is as follows:

$$Q = \frac{1}{M} \sum_{j=1}^{M} q_j. \tag{11}$$

(b) The frequency of video quality fluctuation is as follows:

$$S = \frac{1}{M-1} \sum_{j=1}^{M-1} \left| q_{j+1} - q_j \right|. \tag{12}$$

(c) Re-caching events in a bandwidth $(b_1, b_2, \ldots, b_M)$ environment can be measured by the ratio of re-caching events in the time domain:

$$P^s = \frac{T^s}{T'},$$
$$T^s = \sum_{j=1}^{M} \max\left(\frac{r_j, q_j \cdot \tau}{b_j} - T_{j-1}, 0\right), \quad (13)$$
$$T^t = M \cdot \tau + T^s.$$

Among them, T^s is the re-caching time, T^x is the number of re-caching events, and T_{j-1} is the cache level at time t_{j-1}. It is worth noting that the influencing factors of these three parts are all standardized, which ensures the fair comparison of QoE between video sequences of different lengths. Finally, in the QoE metric, different weights are used to balance these three factors. The calculation formula is as follows:

$$\text{QoE} = Q - \omega_1 S - \omega_2 P^s. \quad (14)$$

Among them, the range of ω_1 is $[0, 0.5]$. According to the results of subjective testing, a 10% playback interruption rate is equivalent to a drop of 2 quality levels. Therefore, ω_2 is set to 20 here.

When designing a rate-adaptive method, we must fully consider and estimate the user's QoE. Considering the impact of visual memory on QoE, it can usually be estimated from four aspects: average video quality level, quality change during video playback, video interruption (re-buffering event), and initial playback delay. By studying the existing QoE model, we write the QoE model as a general formula as follows:

$$\text{QoE} = \overline{Q} - w_1 P_{QV} - w_2 P_{RB} - w_0 P_{\text{IPD}}. \quad (15)$$

Among them, $\overline{Q}$ and P_{QC^r} represent the average quality of the video and the quality fluctuation of the received video segment, respectively, P_{RB} and P_{IPD} represent the re-buffering time and the initial playback delay, respectively, and w_0, w_1, and w_2 are model parameters, which are all positive values.

To estimate QoE, the state of the system must be known. In the framework of multihypothesis rate adaptation, in order to balance the relationship between convergence speed and accuracy, we define the system state at time t as $S_t = (q_{t-1}, \beta_{i-1}^{\text{rsi}}, c_t, b_t)$, q_{t-1} is the quality of the received video segment at time t-1, β_{t-1}^{ss} is the estimated bandwidth, c_t is the complexity of the video content to be downloaded, and b_1 is the buffer length at time t. According to the defined system state, the average quality of the video can be replaced by the quality q_t of the video segment downloaded at time t, and the quality change will be simplified to $|q_t - q_{t-1}|$. The re-caching event can be formulated as $\max\{(D_1^{ei} - b_t), 0\}$, D_1^{ext} is the estimated download time of the video segment requested to be downloaded at time t, and the formula is as follows:

$$D_t^{\text{est}} = r_t \times \frac{T}{\beta_{t-1}^{\text{est}}}. \quad (16)$$

In order to make the cache area have a certain reserve and stabilize it to a predefined level (b_0), we added another factor (called the safe cache level) to the QoE model, as shown in the following:

$$P_B = g\left(b_{i+1}^{\text{sest}} - b_0\right) \times \left|b_{i+1}^{\text{ess}} - b_0\right|. \quad (17)$$

Among them, there are

$$b_{i+1}^{\text{ext}} = b_t + T - D_i^{\text{est}}. \quad (18)$$

At the same time, $g(\cdot)$ is a binary function, and the expression is as follows:

$$g(\cdot) = \begin{cases} -1, & b_{t+1}^{\text{est}} - b_0 < 0, \\ -0.25, & b_{i+1}^{\text{est}} - b_0 > 0. \end{cases} \quad (19)$$

When b_{t+1}^{est} is smaller than b_0, the risk of video playback interruption (re-caching event) is greater. Therefore, we give a large absolute value penalty coefficient (−1), and then we can choose a low bit rate video segment in the next step. Similarly, when b_{i+1}^{en} is larger than b_0, the risk of re-caching is smaller. Therefore, we give a penalty coefficient with a smaller absolute value (−0.25), and then we can choose a higher bit rate video segment.

Since the initial playback delay is manually set to a fixed value (such as 2s, 5*s*, etc.), it does not affect the comparison of various adaptive methods QoE, so here we set the initial playback delay parameter w_0 to zero. Therefore, the QoE estimation model used in our proposed rate adaptation framework (also called the reward function at time t, R'_{wd}) can be written as follows:

$$\begin{aligned} R'_{wd} = QoE = q_1 - w_1 \cdot |q_1 - q_{t-1}| \\ - w_2 \cdot \max\left\{\left(D_1^{\text{esi}} - b_t\right), 0\right\} - w_3 \cdot P_B. \end{aligned} \quad (20)$$

Among them, w_1, w_2, and w_3 are model parameters, all of which are positive values. At each decision moment t (represented by the number of downloaded video clips), the bitrate adaptive system will make an action a_i (choose the bitrate to download) based on the system state S_t, downloading the bitrate that best suits the current system environment and maximizing QoE as much as possible.

4. The Application of Internet Multimedia Technology in College Music Education

The main purpose of this system is to manage the teaching resources generated in the music teaching process and to collect these resources into the library. The main functions of the system are as follows. (1) It provides materials for teachers' teaching. Teachers can query the materials needed in the teaching process through the system, and they can also browse the materials used in the past teaching process to enrich the teaching content and save lesson preparation time. (2) It provides a basis for teachers' scientific research and improves the quality of teaching. The system collects teaching resources provided by teachers, such as courseware, notes, as well as teaching resources generated during the learning process of students, such as student grades, student reports, and students' evaluations of teaching resources. The collection and mining of these data enable teachers to better understand students' learning behaviors, improve teaching methods, and provide education and

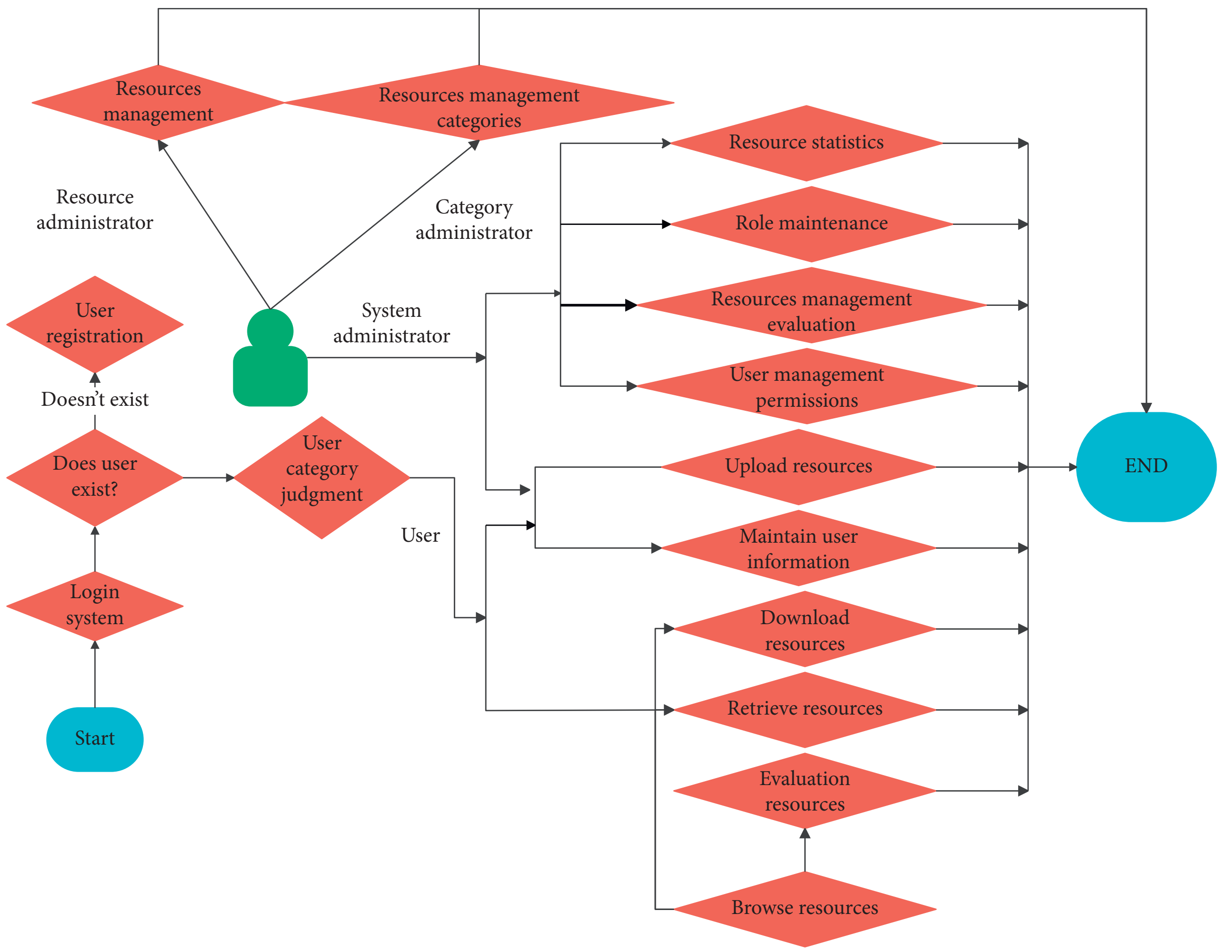

FIGURE 4: System business flow chart.

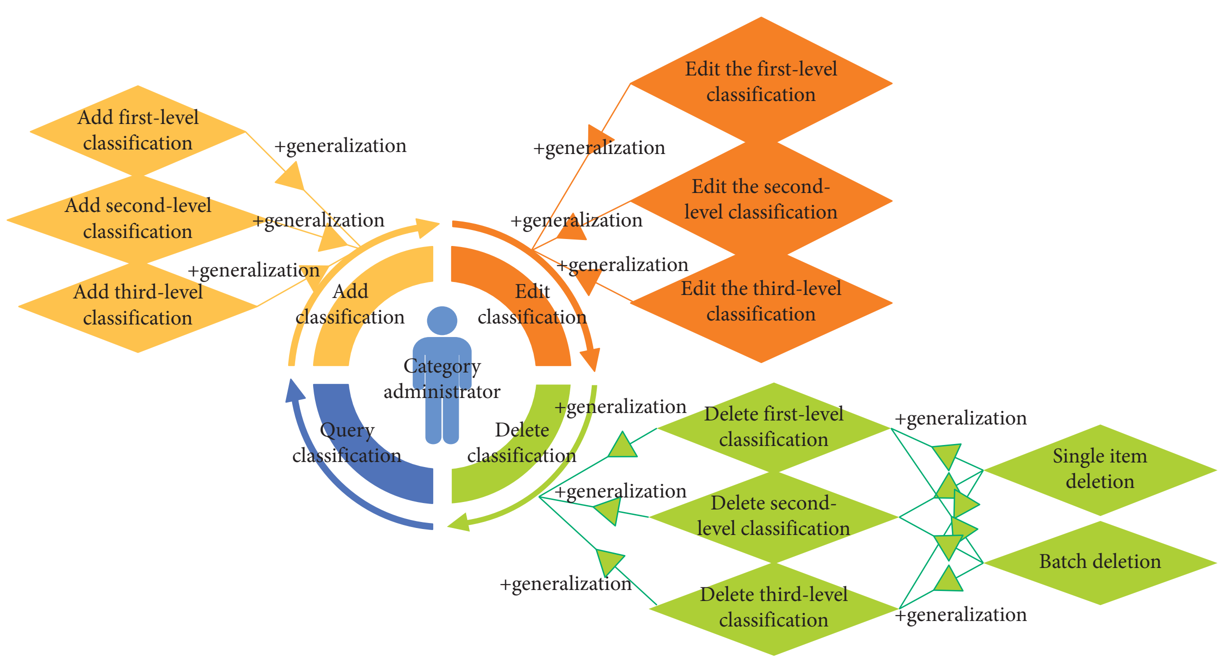

FIGURE 5: Use case diagram of resource classification management.

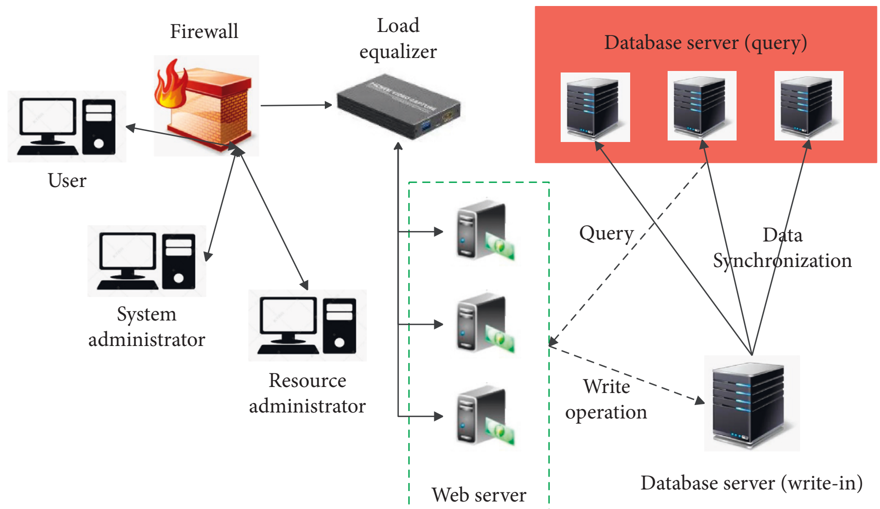

Figure 6: System topology diagram.

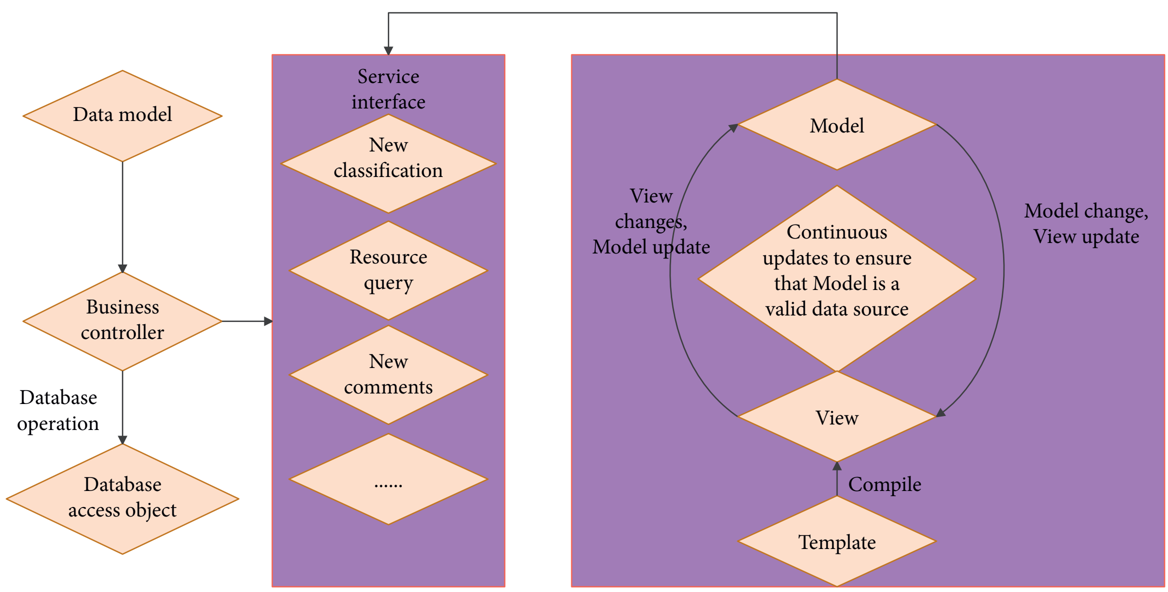

Figure 7: System architecture diagram.

teaching quality. (3) It improves students' interest in learning. By reading and referring to the learning resources provided by teachers and students, we can solve problems in learning and improve the efficiency of our own active learning. Through the upload, download, and evaluation of resources, the enthusiasm of students in learning can be effectively improved.

After users enter the website, they can browse various resources online, and the system automatically generates some fine-quality resources, popular resources, and the latest resources for users. After opening the resource, the user can evaluate and download the resource. Moreover, users can upload their own experiment reports, study reports, courseware, lesson plans, study guides, and so on to the server. Users can also upload high-quality resources collected during normal teaching and learning, such as websites, pictures, music scores, and manuscripts, in different formats. In addition, users can also browse resources uploaded by themselves, edit and modify uploaded resources, and view other users' evaluations of personal resources. The administrator mainly performs classified management of various resources, storage and backup of existing resources on the server, and management of user permissions and resource evaluation.

The business process of the system is shown in Figure 4.

The dynamic addition and editing of classifications are realized in the background, which facilitates easy expansion and flexible adjustment of classifications. Resource classification management is shown in Figure 5.

According to the above analysis of system requirements, the functional structure modules of this system are designed. Figure 6 shows the system topology.

Figure 7 shows the structure of the Internet multimedia music teaching system designed in this paper.

The system architecture is divided into two major parts, namely, the front-end MVC framework and the back-end

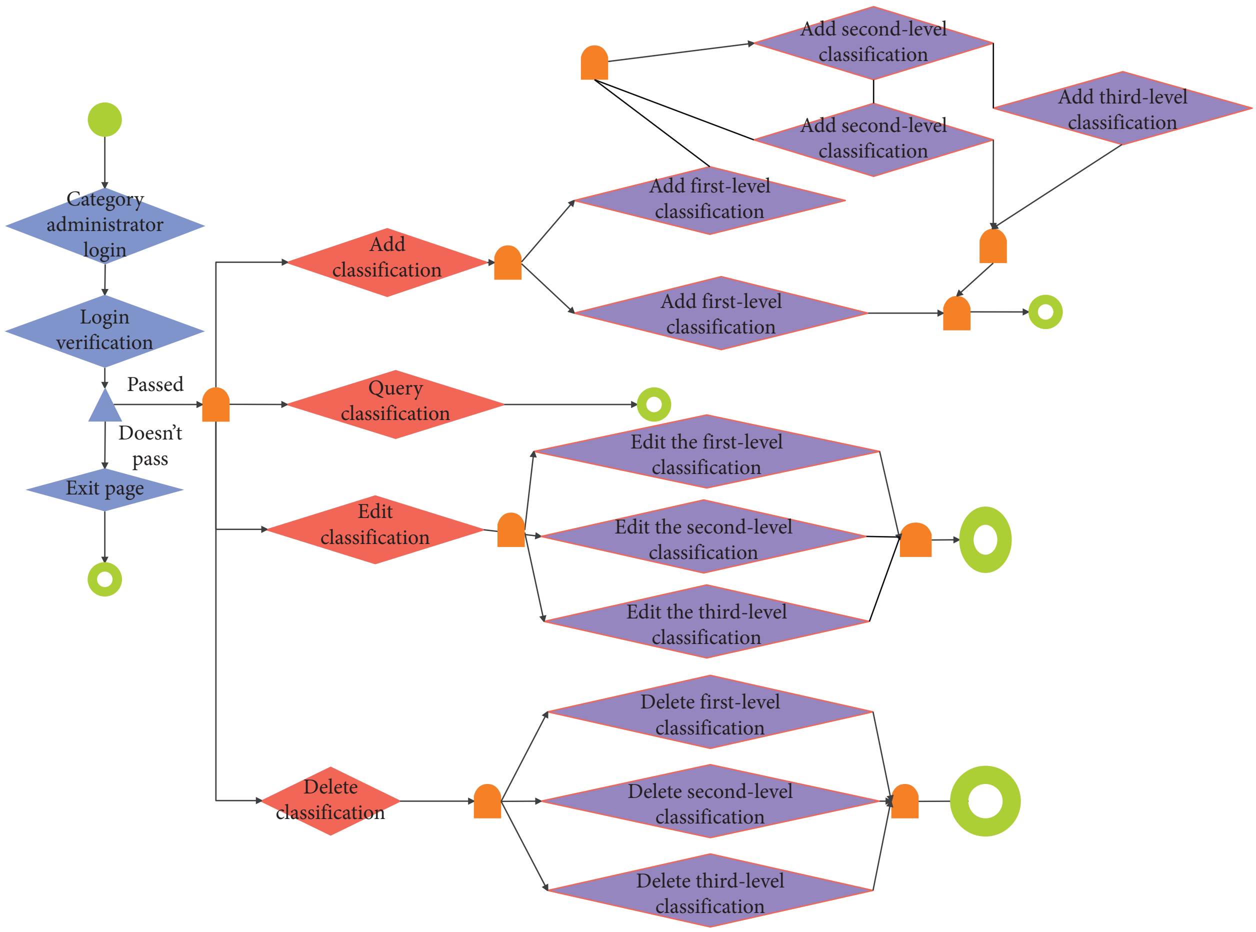

Figure 8: Activity diagram of resource classification management.

Table 1: The effect of DASH multihypothesis framework in the processing of college music education resources.

Num	Music resource processing	Num	Music resource processing	Num	Music resource processing
1	95.78	28	89.99	55	92.72
2	89.13	29	90.84	56	94.53
3	91.46	30	95.20	57	90.00
4	90.81	31	90.37	58	89.06
5	91.03	32	96.00	59	91.73
6	89.98	33	93.40	60	90.29
7	95.75	34	90.12	61	91.49
8	95.18	35	93.83	62	95.32
9	90.95	36	95.09	63	91.87
10	89.62	37	91.11	64	93.86
11	92.75	38	91.34	65	91.74
12	91.79	39	92.32	66	91.10
13	91.98	40	92.12	67	94.97
14	92.70	41	95.18	68	91.04
15	90.14	42	93.53	69	93.39
16	95.61	43	95.08	70	91.53
17	93.87	44	89.94	71	90.97
18	89.31	45	89.82	72	91.61
19	92.05	46	95.22	73	89.98
20	95.72	47	91.49	74	92.23
21	93.95	48	91.91	75	90.44
22	90.55	49	93.73	76	92.72
23	94.03	50	91.73	77	94.99
24	89.18	51	92.69	78	95.52
25	95.19	52	94.68	79	91.22
26	91.58	53	95.12	80	90.08
27	89.23	54	93.55	81	94.64

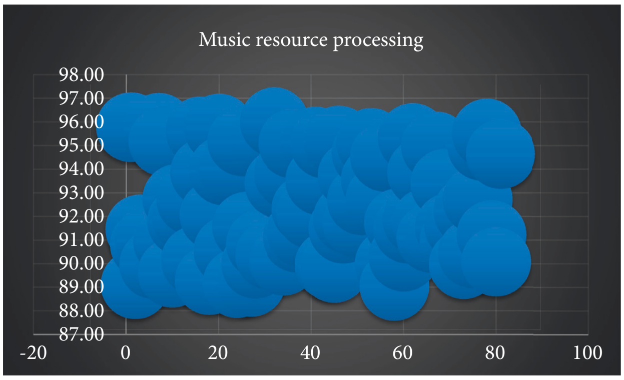

Figure 9: The processing effect of DASH multihypothesis framework on music Internet multimedia resources.

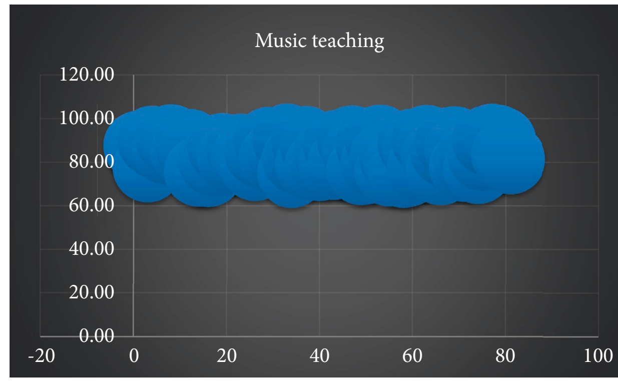

Figure 10: Statistical diagram of system performance.

Table 2: Evaluation of system effect.

Num	Music teaching	Num	Music teaching	Num	Music teaching
1	87.56	28	83.92	55	75.80
2	85.47	29	89.36	56	82.57
3	77.67	30	81.87	57	78.87
4	89.89	31	82.61	58	75.16
5	88.25	32	84.49	59	75.65
6	88.34	33	90.87	60	88.56
7	85.79	34	75.11	61	85.12
8	90.54	35	81.81	62	77.82
9	88.64	36	84.06	63	90.23
10	87.23	37	89.78	64	87.91
11	84.64	38	79.15	65	82.64
12	88.35	39	87.74	66	76.35
13	85.53	40	78.29	67	84.76
14	75.67	41	80.12	68	89.25
15	77.19	42	83.92	69	89.64
16	75.54	43	78.81	70	85.87
17	80.86	44	88.11	71	77.90
18	80.05	45	79.75	72	80.04
19	86.50	46	79.25	73	83.59
20	86.01	47	90.00	74	76.92
21	82.00	48	84.79	75	82.97
22	82.57	49	76.39	76	90.08
23	86.29	50	76.76	77	90.77
24	82.25	51	87.96	78	90.44
25	80.86	52	79.88	79	89.48
26	78.29	53	90.36	80	83.69
27	84.62	54	82.68	81	81.36

service framework. The front-end page does not use the traditional dynamic page technology (such as JSP and ASP) but the MVC framework based on JaVaScript. By deforming the HTML template, setting the data model can efficiently perform data binding, and the development efficiency is extremely high. The back-end part also adopts the MVC architecture. Each service item has a business controller for processing, and the business controller usually relies on the data model, and the database operation is handed over to the database access object (DAO) implementation.

The resource classification management activity diagram is shown in Figure 8.

On the basis of the above research, the application of Internet multimedia technology in college music education is analyzed, and the effect of DASH multihypothesis framework in college music education resource processing is evaluated, and the results are shown in Table 1 and Figure 9.

From the above analysis, it can be seen that the DASH multihypothesis framework proposed in this paper has a good effect in the processing of multimedia resources of the music Internet. On this basis, the effect of the intelligent music resource processing system proposed in this paper is verified, and the simulation research method is used to evaluate the results, as shown in Table 2 and Figure 10.

Through the above statistical analysis, it can be seen that Internet multimedia technology has good effects in college music education, can effectively handle various resources of college music education, and can effectively improve the efficiency of college music education.

5. Conclusion

At present, the traditional music education mode in colleges and universities still occupies the dominant position in music teaching, which is not good for the development of students' diversified abilities, and students can only passively learn theoretical knowledge. In the process of applying new media technology, diversified teaching goals can be achieved. In addition, teachers will optimize the teaching mode in combination with new media technology and use video explanations, courseware explanations, and other forms to provide students with intuitive music teaching content. In addition, teachers will also use forms such as creating a new media teaching environment to enhance students' ability to feel the artistry of music and cultivate students' music appreciation and artistic quality as soon as possible, which has far-reaching significance for improving their teaching effects. This article combines the Internet multimedia technology to study the methods of college music education, builds an intelligent system, changes the traditional college music teaching mode, and provides modern music teaching effects. The analysis shows that Internet multimedia technology has good effects in college music education, can effectively handle various resources of college music teaching, and can effectively improve the efficiency of college music education.

Data Availability

The labeled dataset used to support the findings of this study is available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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