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Exploring Integration Mechanism of Music Instructional Design and Education Informatization

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Abstract

INTRODUCTION: In the new era of information society, the knowledge reform of school music education is getting more and more attention. Traditional teaching methods need to make full use of information technology. They cannot meet the current learning needs because the learning of information technology teaching is an essential means to realize modern learning. , therefore, the application of information technology in music education meets the requirements of the times.
OBJECTIVES: To improve traditional teaching methods by utilizing modern teaching techniques so that students can gain more knowledge. With the help of modern technology and information technology, secondary music education can change the students' audiovisual experience, enrich their musical experience, and deepen their understanding and memorization of knowledge.
METHODS: In this paper, use a neural network algorithm to explore the integration mechanism of music teaching design and education information technology, optimize the traditional information technology teaching platform, improve the stability of the music teaching platform, and further improve the level of network teaching from the feedback of students and teachers.
RESULTS: This study's results found that this experiment's educational platform could motivate students to manage teaching and actively participate in music teaching and lessons. However, due to the real-time nature of information technology, it removes doubts between the parties and facilitates communication between teachers and students. The primary goal of music education is to perceive the attraction of music in terms of sight and sound, to relax the mind and body, and to develop a musical personality. From this perspective, it is also necessary to utilize modern information technology to change teachers' traditional teaching methods in classical performance and singing.
CONCLUSION: With the help of modern technology and information technology, secondary music education can change the audiovisual experience of students, enrich their musical experience, and deepen their understanding and memorization of knowledge. The information system can motivate students to manage teaching and actively participate in music teaching.

Keywords: music, instructional design, educational informatization, integration mechanism

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1. Introduction

Since entering the 21st century, with the rapid development of society, information technology has undergone rapid changes. Daily work, daily needs, scientific research and leisure consumption have been seriously affected, and it has even become an indispensable part of people's lives. In various sectors, people continue to benefit from the rapid development of information technology, such as information and communication technology (ICT). With the rapid development of information, communication and other information technologies, all sectors have experienced

similar innovations and changes, even in areas important for national strength and rejuvenation(Ma & Qin, 2021). As information technology and other information resources continue to be integrated into education and are widely used, frontline teachers' teaching methods and students' listening experiences are undergoing fundamental changes. At the same time, similar adjustments have been made to the goals of teacher education, instruction content, class structure, and the assessment of teaching methods. Earlier, in traditional teaching methods, teachers were often present in the classroom as bodies of competence. However, as information technology continues to be integrated into education, the role of the teacher in the classroom has changed, and the teacher has become the information leader in the classroom. The new green learning environment challenges the ability of students to adapt to different learning environments and teachers' flexibility in new teaching methods. This process determines whether knowledge innovation in education and teaching is compelling and whether older teachers can flexibly utilize information technology to develop IT(Matsumoto-Royo & Ramírez-Montoya, 2021). Strengthening the concept of information technology learning and improving information technology learning skills are the keys to effectively promoting innovative education in the era of the information society.

In April 2018, China's Ministry of Education formulated the "Education Informatization Action 2.0" to improve e-learning, promote the sustainable development of e-education, and accelerate the construction of the modernization level of the education sector and the strength of education, pointing out that combining the "plan" with the development of information literacy in the new era is an inevitable choice for the development of education in the context of the development of the times. The combination of "planning" with the development of information literacy in the new era is an inevitable choice to adapt to the times and develop education in the context of intellectual education. It is based on EDP training, responds to internal development needs and promotes a revolutionary impact on education. It is a crucial way to sustain and rapidly develop high-quality modern education. In March 2019, the Ministry of Education reaffirmed the continuation of the Education Informatization 2.0 initiative to accelerate IT change in the education sector, actively and sustainably develop online education, and improve frontline teachers' educational capacity (Vinichenko et al., 2021)—IT training for frontline teachers and their administrators. China has organized advanced data training for teachers nationwide, provided professional courses on education informatization for education ministers, and pioneered innovative online teacher training activities.

2. Research Context

China has made it clear that the aesthetic education curriculum should be continuously improved, diversified and enriched and that all types of art courses should be developed to increase the selectivity of art courses. Students should be introduced to various art courses and offered options. The school's aesthetic education program is consistent with the scientific direction of the curriculum goals. It enriches students' aesthetic experience, and its primary goal is to broaden students' humanistic horizons and help them develop healthy and correct cultural aesthetics in the learning process(Brown & Baume, 2023). High school music class is an integral part of aesthetic education. Therefore, it is necessary to cultivate the knowledge-based teaching concept of music teachers in high school music teaching and improve its application in the classroom. Only by adapting to the needs of the times and finding learning objectives that meet the requirements of the new era can cultivate the overall ability of the new era.

According to the relevant requirements, the organic combination of the school music curriculum and information technology teaching methods is an inevitable choice in the context of the times to comply with the trend of informatization and modernization of education in China and to respond to the needs of education in the process of the development of the times. In December 2014, the Ministry of Education formally released the first professional qualification standard for teachers in the history of China, which explicitly requires that information technology education incorporate awareness and skills concepts. In the new era, music education's new direction and goal will be to utilize knowledge education methods and better combine traditional music education and knowledge education methods to improve the quality of music education.

The United Nations Educational, Scientific and Cultural Organization divide information technology into four phases. Depending on the degree of integration of IT into education, IT is divided into four phases: "initiation," "application," "integration," and "innovation." ". At the four levels of learning, the individual's conceptualization of IT and level of learning have different requirements for teaching IT. The integration of IT into education and teaching-related areas is being studied. Based on the essential characteristics of the music field and the design of the new high school curriculum as well as the design of the high school curriculum, the following requirements are proposed: expanding the use of information technology in the classroom and facilitating the education and teaching of modern high school music teachers(Hogan & O'Flaherty, 2022). They are strengthening the integration of information technology theories in teaching and learning, strengthening the relationship with secondary music, laying the foundation for similar learning for secondary music teachers, and preparing for the development of information technology education.

From a practical point of view, integrating IT measures into traditional classroom teaching requires setting higher

standards for the overall quality of teachers, their classroom teaching skills and subject specialization. This integration process is constantly evolving to improve the overall quality of teachers, including the ability to integrate IT materials, teach IT in the classroom, develop IT curricula, and improve the education of music teachers in the IT classroom. True curriculum modernization, IT education, and the continued promotion of related policies have also become widespread. By understanding the integration of IT with the traditional classroom and practical research, the authors created the concept of IT teaching and learning, improved the pedagogical competence of IT teachers, and proposed appropriate strategies, which effectively improved frontline teachers' comprehensive IT education level and promoted the reform of traditional music education. Due to the continuous integration of information technology and traditional music education, music education is a practical, diverse, and exciting context that subconsciously continues to develop students' core musical skills, thus stimulating interest in classroom learning. In an informational classroom, students no longer follow traditional teaching methods but are in an information age where information is easily accessible. From a student's perspective, by integrating learning materials, students can begin to learn and develop self-learning skills.

3 Research Methods

3.1 Constructionist and Blended Learning Theory

Many researchers believe that humanistic theory, constructionist learning theory, and theories related to music education have significantly impacted music teaching and learning, enabling better and more effective learning organizations. Teachers usually direct the program in traditional courses by writing on the board. Students passively acquire theoretical knowledge in the classroom and mechanically learn the actual content of the program, but the constructionist approach has abandoned the traditional teaching methods. Learning theories emphasize the intellectual richness of the constructive process of acquiring knowledge using learning materials needed in a particular context. The constructive approach closely links the learning environment and teamwork with shaping the students' active information acquisition process, i.e., a more profound understanding of knowledge models and their internal connections(Ng et al., 2022). At the same time, by studying the structure of cognitive content, teachers provide the necessary materials to guide students to independent thinking, help them develop subjective motivation to learn, and actively analyze and solve problems arising in cognitive development. Information technology to solve critical problems in music teaching enables students to learn new knowledge actively. Knowledge is another tool, and scientific quality is the best indicator for assessing constructionist theory. Constructionist theory is also a process of reforming and modifying the existing cognitive information system. Compared with traditional classroom teaching, constructiveness can break the static process of learning order, reflecting more teacher guidance and giving students more initiative, freedom and collaboration. Teachers and students communicate closely in the classroom with regular discussions and exchanges, guiding students to identify, correct and rectify errors and allowing students to understand and make sense of something entirely new. The flowchart of informative teaching and learning is shown in Figure 1.

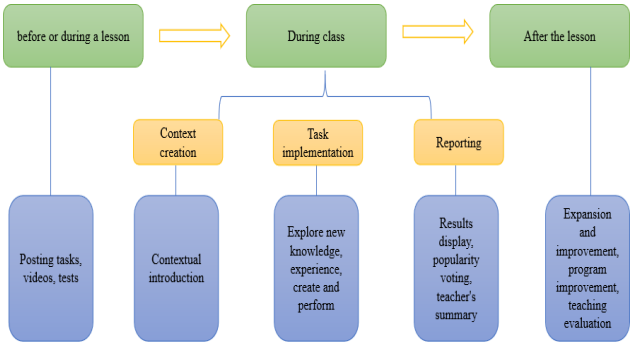

Figure 1 Informationized teaching process

The theory of multiple intelligence, which considers students unique and outstanding, provides a scientific basis for stimulating students' mental potential. It is closely related to the country's general education. It is vital in improving linguistic and musical intelligence in music, reflected in students' communication skills, sensitivity to sounds and rhythms, ability to compose and play instrumental music, and appreciation of musical forms and problem-solving. This paper is based on the theory of Multiple Intelligence, which combines musical intelligence, rhythmic intelligence and practice to quickly identify and develop students' mental weaknesses and explore their potential for individual or group development. This theory is examined in depth and delves into music education's unique ability to experience and express music in the classroom, updating practices and enriching students' poly-rhythmic intelligence and self-confidence skills and actions(García, 2022). Many Intelligentsia theories require personal training. Developing a learning system supported by mutual knowledge using the theory of polymorphic can help develop students' interactive skills. Teachers can also measure learning and interactions between learning by using mutually supported information rather than separate learning systems so that each student's intelligence can be expressed in different areas of learning.

Portfolio learning uses online technology and is one of many traditional classroom teaching methods and educational knowledge environments. Teachers can choose different learning resources, environments and styles based on information technology. This paper aims to facilitate knowledge's creative processing and internalization in multidimensional interactions between

disciplines and resource environments by combining virtual and accurate information technology to transform and process theoretical and practical knowledge. Ensure that teaching and learning interactions are no longer confined to disciplines, enabling students to learn independently, learn and collaborate.

Students become independent learners and practitioners through the primary channels of the school, ultimately leading to changes in behavior and target values(Cummings et al., 2021). Self-learning contributes to students' lifelong development and is an intrinsic mechanism of many factors for which there is no substitute. Self-directed learning reflects the self-regulation and discipline of the learning object. The development of self-directed learning is also one of the essential elements of learning activities, which promotes the understanding and management of learning content and plays a vital role in achieving learning objectives and effectiveness. In some educational mechanisms, the teacher moderately divides the students' tasks, gives space and time for independent learning, defines independent learning, creates a harmonious teacher-student relationship and achieves independent development. The program is an active and independent process of constructive planning, management, assessment and evaluation aimed at better developing good study habits, timely testing of subjects' thinking skills, improving understanding of the content learned, and enabling students to learn and acquire skills.

3.2 Neural network algorithm

With the development of modern technology, various industrial systems have become increasingly complex. The traditional mathematical modeling methods based on the analysis of controlled objects do not produce the expected results, so many new complex system modeling methods have been proposed. The current modeling methods mainly include the grayscale prediction method, mathematical modeling method, neural network method, expert system method, etc. The new modeling and optimization methods mainly include the annealing method, particle clustering optimization algorithm, and Booger's algorithm. As a basic model of artificial intelligence, it is a nonlinear display system that can handle a large amount of data simultaneously and plays a vital role in modern modeling methods(Testov & Perminov, 2021).BP neural network is one of the most traditional and widely used networks. BP's neural network modeling mechanism consists of training the neural network using historical input and output data, learning specific rules, and executing the input data in the neural network to approximate the expected results. To accurately match nonlinear models, the neural network modeling application of BP needs to address the following issues:

1) incorrect design of the BP neural network structure can lead to over-matching or imbalance, and 2) incorrect selection of initial weights may lead to locally optimal solutions. To solve these problems, combining BP neural network algorithms with stochastic global search functions is a new direction in BP neural network modeling. A dynamic interaction method based on particle swarm optimization is proposed to optimize the structure and weights of the neural network and improve the learning and recognition ability (Yoon, 2021). The researchers used a genetic algorithm to optimize the topology and weights of the BP neural network and predict the wind power generation. The results show that the optimized model significantly improves the prediction accuracy. The basic structure of the BP neural network algorithm is shown in Figure 2.

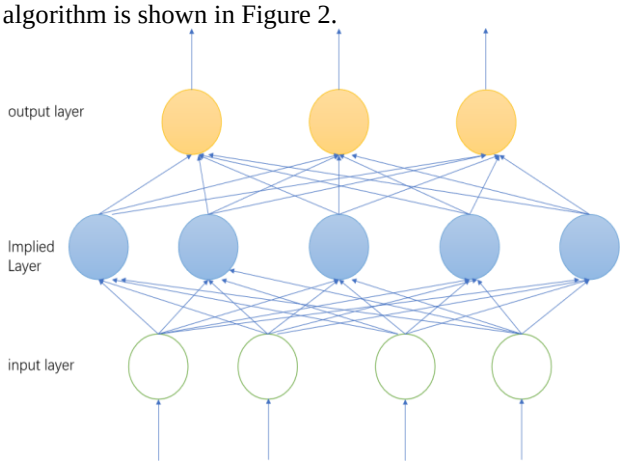

Figure. 2 Basic structure of BP neural network algorithm

Cuckoo has fewer parameters than the particle swarm optimization algorithm, and its convergence speed is not sensitive to parameter changes, so it is unlikely to shift to local optimization. In the algorithm, changes in size and phase enhance the overall search. Therefore, in this paper, a modified cuckoo algorithm is used to optimize the weights and thresholds of the BP neural network and a genetic algorithm is used to provide an optimal neural network topology to avoid the local optimization modeling problem and the BP neural network over-compatibility or incompatibility. Approximation speed and accuracy are also improved. The modeling method proposed in this paper is simplified to the GACSBP algorithm.

The GACSBP algorithm first uses a genetic algorithm to determine the topology of the BP neural network and then trains the BP neural network weights by updating the weights of the augmented cuckoo algorithm. Based on the topological efficiency, the optimal topology and quality of the BP neural network are achieved by a genetic algorithm, improving neural network modeling accuracy (Chen et al., 2022). After determining the topology of the BP neural network and randomly generating the initial weights based on the actual system, the BP neural network is practiced:

$$h_j = f(\sum_{i=1}^{n} \omega_{ij} x_i - a_j) \tag{1}$$

where the f function is a function of the hidden layer, is used to calculate further the accuracy of the middle layer of the neural network;

$$o_k = g(\sum_{j=1}^{n} w_{jk} h_j - b_k) \quad (2)$$

The *g* function is a better measure of the calculation of the output layer and improves the planning of the algorithm.

According to the general approximation theory, the three-layer artificial neural network can be applied to any function. To avoid local optimization, the neural network modeling of BP proposes a meta-heuristic hand algorithm, which updates the neural network weights using an improved hand algorithm. The Cuckoo Algorithm is an algorithm that simulates the breeding strategy of cuckoos to solve an optimization problem(Kundra et al., 2022). The algorithm assumes three ideal conditions: each cuckoo lays only one egg in a randomly selected nest. The best nest is reserved for a greedy strategy; the number of nests is kept constant, and the probability of finding a nest is Pa. When an egg is found, the sender leaves or rebuilds the nest. Based on the above three ideal conditions, a relationship is established:

$$w_a^{t-1} = w_A^t + \alpha \cdot s(w_A^t - w_{best}^t) \quad (3)$$

T is not time in Eq. but the number of iterations for a specific nest.

$$s = \frac{u}{|v|^{\frac{1}{p}}}, 1 < \beta \le 3 \quad (4)$$

β is the error value of the random variable. Calculate another error value:

$$\sigma = \left\{ \frac{(1+\beta)\sin(\pi\beta/2)}{\beta[(1+\beta)/2]2^{(\beta-1)/2}} \right\}^{\frac{1}{\beta}} \quad (5)$$

The step size factor of the standard cuckoo alpha algorithm is constant, which does not contribute to the optimal value of the algorithm. If the step size is large, it facilitates the general search and increases the search speed but decreases the search accuracy; if the step is small, it simplifies the local search and increases the search accuracy, but it slows down the search speed and promotes local optimization. The adaptive nesting algorithm of Käki's algorithm adjusts the step factor automatically to balance the search engine's speed and accuracy.

4 Results and Discussion

4.1 Neural network algorithm application

In practical applications, processing a large amount of data is usually necessary. Alibaba's research team pointed out in their 2019 work that traditional e-commerce platforms usually have tens of billions of nodes and hundreds of billions of edges, with a storage cost of more than 10 TB. In graph neural networks oriented to big data, the graph data's irregularity and the function's complexity and dependence on the samples during the learning process put tremendous computational power, memory management, and the overall communication work of a distributed system under pressure. This paper divides the neural network graph modeling problem in big data applications into a graph data structure, neural network graph model, data size and hardware platform. The neural network algorithm optimization model is shown in Figure 3.

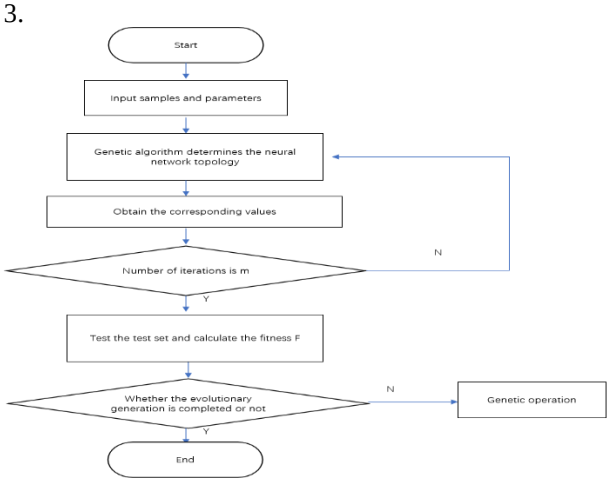

Figure. 3 Neural network algorithm optimization mode diagram

(1) Graphical structure of data. Irregularity, scarcity, dynamics, power distribution between neighboring nodes, and interdependence of graph data samples put pressure on efficient memory usage, especially in distributed computing systems in big data scenarios(Costa & Ortale, 2022).

(2) Neuronal Network Modeling. Wide-node representations are a typical feature of neural network models, which are different from traditional graph algorithms, especially considering the problems associated with large-scale data usage(Huang & Lin, 2021). The iterative update mechanism is designed so that the bathymetric graph neural network model can collide with explosions in neighboring nodes.

(3) Data size. When using data at a large scale, typical graphical neural network models use large-scale learning models with memory constraints. In graphical neural network models based on large-scale learning models, the large amount of data increases the complexity of data separation and iterative updates.

(4) Hardware Architecture. Modeling graphical data structures and complex attributes using graphical neural networks requires flexible and irregular data counts and efficient and intensive computation. Currently, processors run flexibly, and GPUs support high performance and computational intensity, but neither can fulfill both requirements simultaneously (Chatzikonstantinou et al., 2021). The graphical requirements of neural networks cannot be adapted to the hardware architecture, which makes the acceleration of sizeable neural network graphical models complex.

To address and alleviate these difficulties and problems, researchers have optimized the hardware architecture of neural network models, programming frameworks, algorithmic models, and application models to improve scalability, speed up models, and reduce memory load. Specific processing strategies have been proposed for application models to improve the processing efficiency of graphical neural network models for specific tasks in different application scenarios, such as natural language processing, road prediction systems, and recommendations. Even in legal models, typical graphical neural network models use extensive learning techniques that require uploading complete graphical data into memory. Learning geared towards big data, especially GPU-based learning, is often memory-poor. Some research has suggested sampling techniques to comprehensively train graphene neural network models (Gasevic et al., 2022). In programming frameworks, the iterative update representation mechanism in graphical neural networks leads to the interdependence of learning instances.

In contrast, typical neural network frameworks, such as TensorFlow and Python, cannot efficiently perform large-scale model learning and its practical functions. The complexity of the computational process functionality leads to higher storage and computational requirements in current computer systems. Due to the characteristics of traditional neural networks and computational frameworks, several graphical programming frameworks have been proposed to address this problem. The process of algorithmic processing of data is shown in Figure 4.

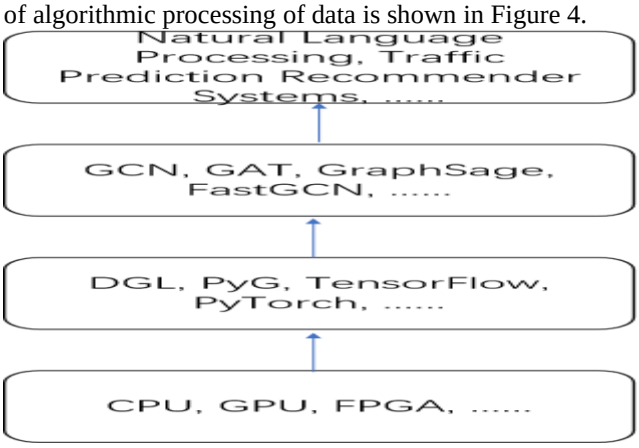

Figure. 4 The process of algorithm processing data

Regarding the hardware architecture, some researchers have proposed the right strategy to optimize the computation and memory usage by studying the processor, graphics card, and FPGA. Alternatively, unique hardware-accelerated structures can be designed according to the graphical characteristics of neural networks. Several researchers summarize the most critical advances in graphical neural network algorithms and their applications. GNN algorithms are divided into four categories: recurrent GNNs, convective neural networks, graphical auto-encoders, and spatial-temporal GNNs. This paper provides an overview of open-source data, implementation scenarios, and applications of the existing methods. Several research organizations have summarized the neural network model design process into three subsystems: message propagation models, sampling methods and pooling functions, and various neural network models and application scenarios (Ryazanova et al., 2022). In addition to presenting the GNN algorithmic models and application scenarios, the organization also summarizes the existing typical frameworks: message-propagation networks (MPNN), canonical neural networks (NLNN), graph networks (GN), and hybrid network models (MONET). Some researchers summarize graph neural networks' development and application proposals from the perspective of algorithmic models and application scenarios. Some researchers focus on the progress of GNN in terms of algorithms, hardware and software gas pedals. First, the essential functions and classifications of GNN algorithms are introduced from the perspective of the computational process. Then, the work on GNN gas pedals is summarized from the perspective of software (programming framework) and hardware.

Finally, possible guidelines for future gas pedal designs are presented: hardware and software integration, graphical recognition, and centralized communication. Finally, several researchers summarize the development and implementation of existing graphical programming frameworks for neural networks, classify and analyze optimization methods, and test and evaluate open-source graphical neural network software frameworks(Fomenko et al., 2021). First, this paper summarizes the primary data, typical algorithms, and application scenarios of GNN, especially the programming framework of GNN. Then, the general design of the GNN acceleration structure is given. To solve the GNN acceleration problem, the key technologies, such as chip memory and external memory, are calculated in detail. Generally, graphical neural network models and related application scenarios are summarized and analyzed in a complete learning model. When the number of nodes or edges in the graph reaches millions or even billions, the learning process usually exceeds the memory of one graphics card. Various approaches have been proposed to promote the advancement of graphical neural network models from initial to comprehensive learning. Sampling algorithms support extensive learning of graphical neural network models and provide a basis for their use in big data. The graphical neural network programming framework combines a deep learning framework with a graphical

Compared with previous studies, this paper focuses on large-scale graphical neural networks (GNNs) and examines, summarizes and analyzes existing studies from two perspectives: algorithmic models and framework optimization. First, the basic principles and typical algorithms of GNN are introduced and summarized. This paper comprehensively analyzes neural network models based on different sampling strategies, acceleration frameworks and related techniques. This document presents a range of reference methods that can utilize graphical neural networks within advanced models designed for big data applications.

4.2 Music Instructional Design and Information Technology Development Results

4.2.1 Music Instructional Design and Informationalization Development Disadvantages

Learning space is an educational process based on specific learning concepts and theories to achieve learning goals with specific learning content. Before the advent of information technology and the Internet, this paper referred to music classes as high school singing classes (Troisi et al., 2022). From this, it was referred to as a traditional music class. Musical instruments are the teacher's voice, guqin and tape recorder are essential in traditional music class. The traditional "singing" learning method is unique and emphasizes acquiring essential knowledge and skills through straightforward content and form, without forgetting the fundamental role of music education. This monotonous method of teaching does not arouse students' interest. Some schools currently lack textbooks due to environmental constraints and lack of textbooks.

Music is an essential course in the School of Fine Arts. Its purpose is to increase students' aesthetic interest, fully develop their physical and mental abilities, and thus improve their practical skills. In China's active development of quality education, the status of the music program is becoming increasingly apparent. The traditional Chinese approach to teaching music in high school is simple, involving studying music and songs. Similarly, the music curriculum is so strict that classroom interactions are rigorous, limiting students' freedom. This learning mode focuses only on the information students acquire and ignores their ability to feel, think, and express themselves. The constant delay in education focuses on the effectiveness of education rather than happiness. This approach must meet modern education's needs or students' real lives. Students only accept what their teachers teach them about death. There is no need to think about what makes the classroom atmosphere lively and slightly dull.

On the other hand, the dominant position of the teacher in the teacher-student relationship limits the students' independence to a certain extent. Secondly, the essential role of students in learning has yet to be fully realized, and students' subjectivity, motivation and learning objectives still need to be fully implemented—the proportion of online education of different music types, as shown in Figure 5.

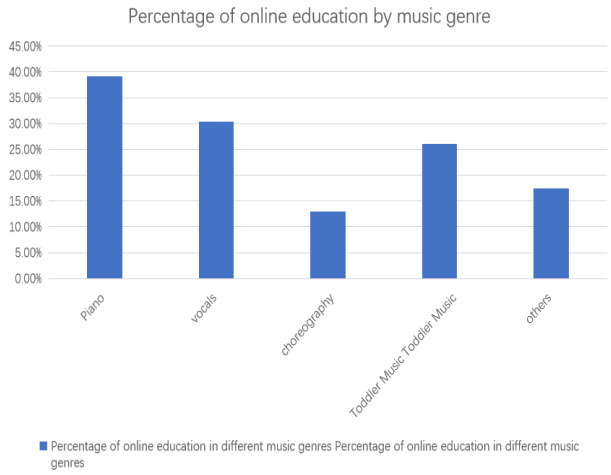

Figure 5 Proportion of online education in different music genres

Currently, most of China needs many teachers and students, and there is an imbalance in teacher-student relationships. The distribution of music teachers in Huaibei shows 40-55 music teachers per class, with an average of 15-20 and 2-4 music teachers. The curriculum is personalized, often repetitive, and learning-oriented, and there is no positive atmosphere between teachers and students. In the long run, students lose motivation and even interest in learning. This learning method does not fully reveal the students' individuality and does not help improve the quality of their music. It focuses only on skill management and inefficient teaching. When assessing the results, most teachers use group and individual learning methods. Students sing in class. The advantage is that it is short, and the teacher can see the whole class in one lesson(Feerick et al., 2022). One drawback of this approach is the simultaneous participation of numerous individuals, which poses challenges in effectively addressing issues that the teacher may need help communicating to the students individually. Individual lessons: pros and cons are utterly incompatible with group learning. Individual lessons are focused, and the teacher can answer questions from each student. However, having more than 20 different explanations and interpretations for each lesson may lead to excessive time wastage and delay in the completion of the lesson. It may be related to the teacher's inability to care for the other students, resulting in a lousy class.

4.2.2 The urgency of computerization in music teaching

Traditional classroom education can no longer meet the talent needs of modern society, and teachers need to update and adapt their teaching concepts, methods and approaches. The organic combination of information technology and classroom teaching effectively develops teaching philosophy, teaching concepts, teaching content, teaching methods and knowledge integration. The study takes complete account of students' personal development

needs and improves the quality of their primary education. Music education plays a pivotal role in providing comprehensive arts education inside schools, serving as a fundamental aspect of elementary education and a crucial component of accessible arts education. Music is a subject that puts enormous pressure on students to achieve good grades in exams to enter higher education. In the classroom feedback area, traditional individual learning takes a long time.

With the introduction of multimedia technology, traditional music courses have been revitalized. With the continuous improvement of teaching methods, many new teaching methods have emerged in music singing courses, such as review lessons, group learning, platform-based independent learning and interest-based learning. Compared with traditional learning methods, this new approach to learning is a significant formal innovation and introduces new learning concepts. It is hoped to emphasize the leadership role of teachers in the classroom, the subjectivity of students, and the full implementation of students' initiative, creativity and other personality building. It updates the traditional concept of music teaching, fully uses teachers' guidance, and improves teaching methods and resources. At the same time, it can increase students' interest in learning and enable students to learn independently, thus improving teaching efficiency. Introducing multimedia technologies, such as MOOC, translation courses and mini-courses, means that traditional music courses are now expanded beyond time and space. Everyone can learn in the school classroom, and everyone can learn in the classroom. Information technology can significantly improve the efficiency of vocal music teaching. For example, traditional classroom teachers allow students to express their opinions which need to be adequate and effective. In addition, information technology allows students to express their opinions to the teacher during questioning so that both the teacher and the students can see them. Statistics of informational music teaching methods are shown in Figure 6.

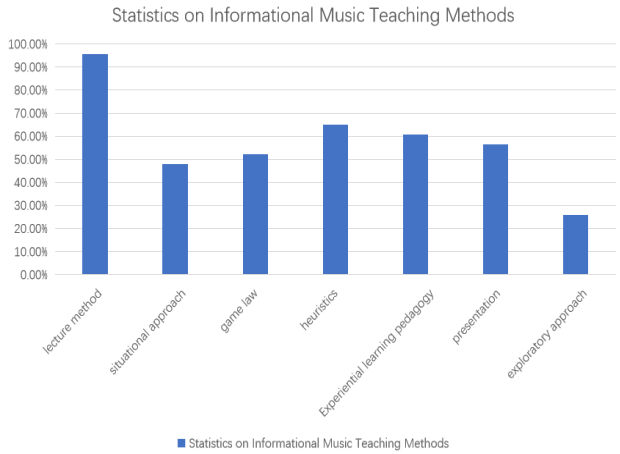

Figure 6 Statistics of informationalized music teaching methods

With the introduction of Lifelong Learning, teachers are under tremendous pressure to learn at a pace that often puts the curriculum in a "cage" of exams. The focus on collecting test content and personal preparation ignores the goal of developing student quality. Lack of active participation in the educational content makes it difficult for students to express their opinions in class and to be passive. IT learning methods enable students to express their opinions differently and enable teachers to obtain more comprehensive and timely feedback. They analyze information about student performance in class, homework, etc. Study habits make just-in-time teaching possible. When assigning homework, assignments can be customized to the individual student at different levels. The Classroom Transitions pedagogy allows students to work in groups on class preparation content and promotes collaboration and self-study among students. This information breaks classroom boundaries by allowing students to view and study the same lessons online. "Praise" and "Interact" can also respond to young students' desire to express themselves and be recognized by others. It can facilitate communication between teachers and students, fully liberate students' individuality, enable teachers to understand each student better, make teaching more targeted and improve teaching efficiency.

4.2.3 The role of informatization in music teaching

Music recognition course is also a compulsory course for high school students. On the other hand, music assessment courses stimulate everyone's nerves to listen carefully and express students' feelings. In the previous courses, teachers used words to express the rhythm of music in some cases so that students could feel the emotions in the process. However, some bored students did not affect the music. In the modern education model, teachers can introduce different forms of music into multimedia and use the music effect so that students can experience the charm and beauty of music in the classroom.

The long-term strategic goals for developing national education are "a country of science education" and "quality education." In recent years, the informatization of education has become a hot topic. Music is different from other high school subjects because it is characterized by art. This form allows students to experience the beauty of music while listening and speaking, to feel and experience the paradise of music, to feel the culture of music and to integrate it into their music, which will have a far-reaching impact on students' future. The application of modern multimedia technology in music education is mainly to reproduce the music, combine school listening and listening, stimulate students' interest in learning, and deepen the meaning of music. In addition, classroom multimedia allows students to understand music better and learn more about music.

The popularization of multimedia technology in China will significantly change traditional teaching methods. With new technologies, students abandon traditional teaching methods and embark on modern education. Students' independence, collaboration and research skills are improved. For example, in high school, students use modern textbooks to stay focused and understand music. The most significant difference in modern education is that it makes the classroom more efficient. In modern digital education, music can be enriched, allowing students to leave school to learn more. This method of teaching can generate interest in students. Commonly used informative teaching tools are shown in Figure 7.

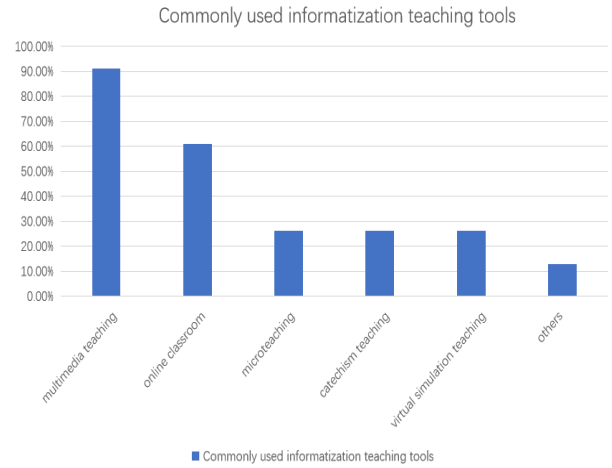

Figure 7 Commonly used informatization teaching means

4.2.4 Feasibility Analysis

As an opportunity for national education reform and model school development, this stage is guided by modern education concepts. It organically combines the development of teaching informatization with three-stage teaching methods. The first step is the digitalization, informatization and intelligence of classroom equipment. Since 2003, the school has implemented campus network construction and more than ten application projects for campus management, operation and postal service. With the establishment of intelligent classrooms and laboratories, blackboards and integrated learning machines have replaced teaching methods such as podiums, blackboards and chalk. Secondly, a comprehensive professional resource library and learning platform has been created. Finally, through intelligent learning and multimedia resources, information technology has been introduced into the classroom, and knowledge learning has been organically integrated into classroom teaching, which genuinely serves classroom teaching and improves the quality of teaching.

By establishing an information and office campus system in colleges and universities, teachers can feel comfortable with their knowledge and adopt relevant teaching methods. Therefore, it is easy to integrate IT into teachers' programs and move from traditional teaching models to new IT teaching methods. The supporters of high schools are flexible and diverse class organizations. Teachers can adapt to the needs of their students. For example, students can extend training time, shorten teacher training, enrich assessment methods, and transform initial teacher interviews into tripartite assessments, self-assessments, and peer reviews that enable teachers to move away from traditional teaching models. It has made some teachers, especially the older ones familiar with the new IT, feel uneasy. Enhancing teachers' professional knowledge is crucial to the development of ITEd. Taking full advantage of their strengths, teachers and students are provided with a wide range of teaching materials so that teachers are fully aware of the enormous importance of computerization. Practical training equips teachers with simple, easy-to-use and efficient information technology to solve many problems. Teachers can better understand the new education and learning concepts and facilitate knowledge acquisition.

In the new media age, young people's reading habits gradually shift from traditional media, such as books and newspapers, to cell phones, tablets, and the Internet, students' primary source of information. Many new media programs that meet most people's daily needs are simple, fast, accurate and effective. The introduction of information education methods aims to adapt to the changing times and meet personal development needs and is accepted by most teachers and students. Traditional methods of learning associated with stress could be more effective. IT learning methods have provided students and classes with vast learning resources. Previously, understanding could only consist of a seemingly weak and empty teacher. Movies, pictures and sounds can bring everything to life. Students will be able to "touch" the book better. Computer-based learning also reduces the teacher-student relationship, facilitates integration through knowledge, and creates collaborative and developmental interactions. The types of teaching resources are shown in Figure 8.

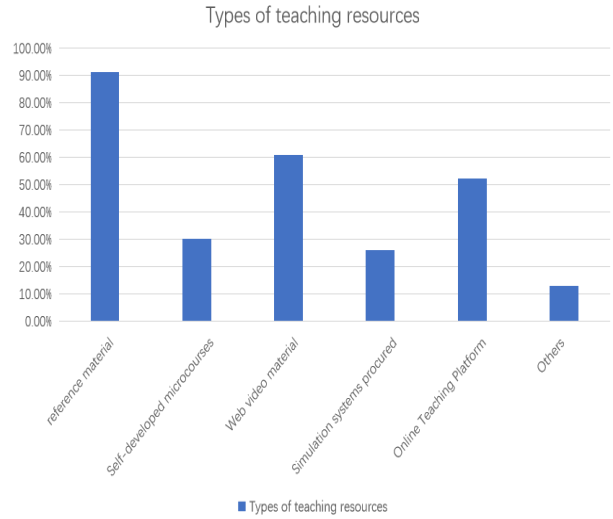

Figure 8 Types of teaching resources

5. Conclusion

In the new era of information society, the knowledge reform of school music education is getting more and more attention. Traditional teaching methods must fully use information technology and meet current learning needs because knowledge-based learning is essential to realizing modern learning. At the high school level, students are increasingly interested in exciting education. Therefore, modern teaching techniques are used to improve traditional teaching methods so that students can swim freely in the sea of music, enjoy the process of music and gain more knowledge. With the help of modern technology and information technology, secondary music education can change students' audiovisual experience, enrich their musical experience, and deepen their understanding and memorization of knowledge. The information system can also motivate students to manage their teaching and actively participate in music teaching and programs. However, due to the real-time nature of information technology, it removes doubts between the parties and facilitates communication between teachers and students. The primary goal of music education is to perceive the attraction of music in terms of sight and sound, to relax the mind and body, and to develop a musical personality. From this perspective, it is also necessary to utilize modern information technology to change teachers' traditional teaching methods in classical performance and singing. Transmission of the use of modern technology can effectively improve the learning efficiency of students and teachers, increase learning motivation, and achieve a multiplier effect. Integrating modern information technologies with secondary music education is considered a systematic and in-depth study of value.

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