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Research Article

Analysis of Music Wisdom Education Mode under the Background of Internet of Things

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With the rapid progress of information technology, more and more things can be transmitted and analyzed in the form of data through sensors. The idea of interconnection of all things is gradually becoming a reality. With its blessing, many areas of people's life are quietly changing, such as health care and education. In particular, the concept of smart classroom makes music, geography, and other traditional subjects, which are in a weak position and glow with a new era glory. This paper takes the music wisdom education mode under the background of Internet of things as the research object, analyzes the contemporary practice of music wisdom classroom by using the methods of data analysis and vertical comparison, and uses the methods of data analysis and longitudinal comparison to analyze the contemporary practice of music wisdom classroom, the practical choices it provides in the music teaching process, and the innovative music teaching design form. The strengths that enhance students' cultural experience in the music classroom and other areas can be elaborated upon. And its future development trend is expected. Looking forward, it will make remarkable achievements in intelligent attendance management, the connotation and extension of innovative music wisdom education in compound classroom interaction, and so on.

1. Introduction

The concept of Internet of things was first formed at the end of last century. After ten years of development, it was formally put forward in 2005. It is developed on the basis of the Internet. Although it is not separated from the Internet in essence, it is very different from the information technology that people have daily contact with in many aspects. It extends from human-human interaction to human-object interaction and even object-object interaction and enhances the accuracy and rapidity of information exchange through the mode of overall perception, reliable transmission, and intelligent processing as the core [1, 2]. It has brought great changes to people's life, health care, and education. Many countries in the world have listed smart education as a strategic step of key development.

It can be seen from Table 1 that the major countries in the world have recently issued plans to promote information education and raised them to the level of their own national strategies. It shows that they attach importance to seizing the leading position of intelligent education.

The components of the Internet of things to realize the information exchange are mainly composed of chips, sensors, and so on. These components are combined to form a very careful data collection analysis feedback process. In April 2018, China's Ministry of education made a strategic plan for the application of the Internet of things in education, preparing to basically complete the nationwide layout of "two high schools and three coverage" in five years. The details are shown in Table 2.

From the perspective of development goals, the layout is to realize the education and teaching sharing platform supported by Internet of things technology, break through the constraints of space and time, and realize the optimal allocation of educational resources. It is an upgraded version of the education informatization 1.0 strategy built at the beginning of the new century, which reflects the development of education and teaching with the times.

TABLE 1: Overview of smart education development strategies of major countries in the world.

Nationality	Introduction time	The name of plan
Singapore	2017	The country of smart 2025
U S	2017	National educational technology program
South Korea	2011	Promoting smart education strategy
European Union	2012	Future classroom laboratory
French	2013	Reconstruction of the basic education planning law of the People's Republic of China

TABLE 2: Layout details of "two high and three coverage."

Project content	Content
Two	Popularity of internet of things technology
High	And teachers' information processing ability was generally improved
Three	The teaching app covers every teacher
	The learning app covers every student
Cover	Internet of things technology covers all levels of campus

At present, the application of the Internet of things in the field of education is mainly reflected in three aspects. First, with the help of sensors and cameras and other information collection equipment, the information of students' expressions, actions, and expressions in the classroom is collected. Then, the information collected is analyzed by computer chips, and the degree of students' participation in class and their satisfaction with teachers' teaching are obtained. The third level is to divide the students into three levels. Teachers can adjust their teaching strategies according to the analysis results, and school leaders can create a smart classroom with "integration of industry and curriculum, scientific adjustment" from the level of guidelines, so as to realize the renewal and progress of the teaching mode.

Although music education is in the position of "small subject" in all levels of nonprofessional education, with the improvement of national attention and the improvement of national comprehensive quality, music has won more and more students' love by its charm. From the reality, the music classroom of all ages in China is still in the traditional mode [3, 4]. Teachers sing "one-man show" in front of them and occasionally interact with a few students with a certain foundation. Most of the students are basically in the "foil" position. After the introduction of multimedia with information technology as the core into the music classroom, music teachers can put more energy into the interaction with students. On the contrary, the display of music works can be completed by the information terminal. This makes the majority of students' participation in the music class greatly improved, and their perception and appreciation of music works also improved. This makes people full of expectations for the music intelligent classroom mode in the era of Internet of things.

2. Internet of Things Technology Helps to Realize Music Wisdom Education

Under the influence of the theme of Internet of things that emphasizes "interconnection," music education emphasizes the quality of "teacher-student connection" and even "student-student connection," which makes the interaction between teachers and students and between students more close and frequent [5, 6]. This is highly consistent with the idea that intelligent music education hopes to realize the resonance between music works and students at the level of extension and connotation. It also makes music education more unified in the practice of teaching objectives such as work appreciation and quality cultivation. From this point of view, the development of the Internet of things provides a strong boost to the traditional music classroom teaching to the wisdom education and gives it more practical choices and wider adjustment space in the teaching process.

The positive effect of IoT technology on music wisdom education is shown in Figure 1.

2.1. The Development of Internet of Things Provides More Practical Choices for Music Teaching Process. The intervention of Internet of things technology in music classroom teaching has shown its strong advantages in practice diversity, especially in the aspect of enhancing students' enthusiasm and participation. It has the incomparable function of relying solely on multimedia teaching at this stage. For nonmusic major students, music works can attract them and more rely on beautiful melody and other easy-to-perceive factors [7, 8]. The intervention of the Internet of things will help music teachers to do a good job in the introduction and explanation of teaching content, with the assistance of technical equipment, and carry out a variety of practical debugging so that it can be more in line with the context of teaching content. For example, the application of radio frequency identification technology in music classroom, under the core goal of improving students' music literacy, on the one hand, can help teachers collect students' classroom performance more comprehensively and accurately and realize the free switch between teaching and communication; on the other hand, this technology also helps to trace students' classroom performance and enlarge students' understanding of music classroom. On the basis of not interfering with the normal teaching progress and teachers' thinking, data analysis is used to construct a more scientific teaching model [9, 10]. For example, blackboard instructor, developed by blackboard company, is an app with the main
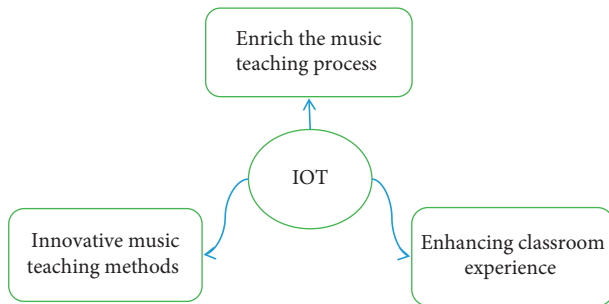
FIGURE 1: The positive effect of IoT technology on music wisdom education.

goal of promoting interaction between teachers and students. It helps teachers sort out students' opinions on curriculum design, realizes in-depth communication between teachers and students, and enhances the attraction of the classroom to students.

In the taskbar on the left of Chinese interface of blackboard instructor, most of the tasks that teachers can apply in teaching are integrated, such as viewing the course list and summarizing students' learning feedback, and the design of classroom problems can also be selected according to the situation so as not only to greatly improve the pertinence of the classroom but also easier to mobilize the enthusiasm of students.

2.2. The Development of Internet of Things Makes the Design Form of Music Teaching More Innovative. With the development of Internet of things technology, music teaching design is more innovative and greatly enriches the development of English classroom. Because of the limitation of teaching idea and teaching method, music teaching mostly focuses on the explanation of music knowledge and makes music aesthetic education become music theory. The development of Internet of things technology makes the function of English education more comprehensive. While paying attention to the cultivation of music literacy, it can also achieve high-quality interaction in the teaching process and make the teaching form of music classroom perfect constantly [11, 12]. For example, when guiding students to identify the names and functions of Chinese and Western musical instruments, the former teaching and auxiliary tools are hanging painting. The differences in performance techniques and performance characteristics are entirely based on the simple theoretical explanation of teachers, and the interested students can remember mechanically, and those who are not interested are too interested in it. With the increase of Internet of things technology, teachers can have more space for design. Select a concert segment; on the basis of appreciation of music works, select the performance of each instrument so that students can deepen their understanding of musical instruments through visual and auditory. Although this form can also be realized with the assistance of multimedia devices at this stage, it can still be regarded as the application innovation of Internet of things technology [13]. Thus, to a great extent, it improves the

vividness and artistic charm of music classroom and also makes the Internet of things technology play a more innovative role in music classroom.

2.3. Internet of Things Technology Enhances Students' Cultural Experience in Music Class. Cultural attribute is an indispensable part of music works, and physical network technology can better transfer this attribute to students. In music appreciation class, the process of transferring the cultural background and literary value represented by music works to students is called cultural transfer. Internet of things technology expands the extension of smart music teaching and provides many modes for cultural transmission [14]. The powerful connectivity of Internet of things technology broadens the channels of communication between students and different cultural types and enhances students' direct contact and emotional exchange with different cultures. Cultural attribute is very monotonous and obscure if teachers explain it alone [15, 16]. With the help of Internet of things technology, the cultural characteristics behind music works are more easily perceived by students, which make students' understanding of music works rise from perceptual appreciation to rational cognition. Music appreciation and cultural perception enrich the level of music works, and music class has become an irreplaceable cultural experience. For example, in the teaching of the song of seven sons, most of the students' knowledge of this song is limited to the theme song of the documentary "the years of Macao," and they have a deep understanding of the pathos behind Wen Yiduo's creation of this poem. The author made a short film about the seven cities in old China which were occupied by the great powers at that time so that the students could recite poems with emotion while learning the lyrics. In the process of recitation, students can better perceive the sadness behind the lyrics. With the help of Internet of things technology, the original simple song teaching has successfully penetrated the aesthetic education.

3. The New Trend of Music Intelligent Education in the Context of Internet of Things

The introduction of Internet of things technology has made music classroom which has presented the situation of teachers and students fighting for themselves in teaching and has the hardware foundation of efficient communication and interaction necessary for music wisdom education. In the future smart music classroom, "human-computer integration and symbiosis" has become an irreversible trend. With the improvement of the practice level, Internet of things technology is not only external auxiliary equipment, but a part of music classroom.

3.1. Intelligent Attendance Management. After the full coverage of the campus layout of Internet of things devices is realized, the smart music classroom will present a completely different face from now, and each student has a unique identification code. When the class time comes, the

intelligent induction recognition system in the classroom and corridor will automatically start to work, and screen the students who have entered the seats for class and have not entered the classroom. In the classroom, RFID technology controls and tracks students' classroom performance [17]. Students can use their own information terminal to select their favorite music works from the teacher's shared music library within the scope of the classroom theme. If you have any questions, you can also interact with the teacher through the intelligent interactive system, which will not affect other students. At present, the United States, the United Kingdom, and other countries have been exploring the application of RFID technology in the field of student attendance management and achieved certain results, but how to scientifically solve the contradiction between student identification and respect for students' personality needs further research and exploration.

3.2. Compound Classroom Interaction. With the development of Internet of things technology, it is possible to conceive the compound interaction between middle school students, teachers, and even students. It not only enriches the forms of music classroom interaction but also makes the interaction more efficient and humanized. In addition to the application of RFID technology in student seats, classrooms, and corridors, which has been mentioned earlier, the Internet of things technology also makes the educational purpose of "student-centered" present in a more flexible way [18]. Students' thinking in music class will be more active, but their enthusiasm to participate in interaction is also strong. Students with similar music interests can be grouped automatically through the host system in the classroom, instead of the nearby grouping mode adopted in the current classroom teaching. Students communicate through the intelligent terminal, and the teacher has the management authority on the host, which can supervise whether the topic of students' interaction is within the specified scope at any time. This is similar to the current English listening teaching, but it is not only more advanced but also more intelligent. The process of classroom interaction screening by Internet of things technology is shown in Figure 2.

As can be seen from Figure 2, under the background of Internet of things technology, the ineffective interaction in music classroom was rejected under the supervision of teachers and evolved into effective interaction through guidance. After that, through the encouragement of effective interaction, teachers finally improved students' classroom participation and realized the ability expansion. With the development of science and technology, intelligent equipment will gradually enter the music classroom. This equipment will amplify the supervision role of teachers and grasp the status of students in time. In addition, the effect of learning can be reflected in the results of digitization, and students' weaknesses in music learning can be intuitively shown through assignments, providing a more scientific reference for teachers to "teaching according to their aptitude."
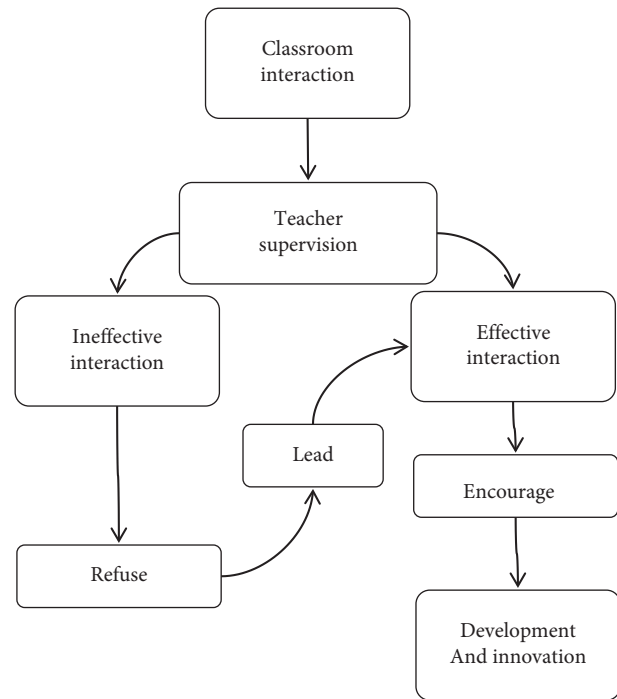

Figure 2: Technology for music smart classroom interaction screening adjustment process.

3.3. The Connotation and Extension of Creative Music Wisdom Education. With the rapid progress of Internet of things technology and the gradual deepening of its application research in the field of education, music wisdom education is also constantly exploring and innovating its own connotation and extension. At the present stage, music wisdom education has become a fashion, and the praise of music wisdom education in education reform is clear at a glance. However, what is music wisdom education and what are its practical approaches? What are its main training objectives? However, few people can make it clear. In many rounds of education reform, we can see that diversified training is gradually becoming the dominant direction of basic education. The traditional knowledge teaching is replaced by the comprehensive practice teaching which focuses on the improvement of ability and the cultivation of quality. Thus, it not only enhances the students' classroom engagement but also effectively stimulates their creative thinking. This is very helpful for the future development of students.

In the future music wisdom class, the cultivation of students' comprehensive practical ability will go to a higher level. From music appreciation and cultural transmission to music performance, students will input their works into the information terminal, and the learning terminal products will point out the areas that need to be improved in students' performance according to the classic works of students' performance repertoire and put forward suggestions for improvement. In the examination process, teachers can also set up multiple sets of test questions. Students can choose the range of answers according to their own preferences, and then, the information terminal automatically arranges and combines the test questions to avoid students' boring memory of knowledge. Internet of things technology can

also help students break through the time and space constraints, form a band with music lovers around the world, cross the cultural and time and space barriers in music, and achieve a deep understanding of music.

4. Conclusion

Music wisdom education under the background of Internet the things can be said to be an unused form of education, and the exploration of this form is deepening with the development of Internet of things technology. The height of theoretical research has a very direct impact on the depth and breadth of practice. Therefore, only with in-depth exploration of the relationship between Internet of things technology and music wisdom education can we better promote the realization of music wisdom education. Under the guidance of this theory, this paper focuses on "analyzing the current situation and looking forward to the future," discusses the structure, value, and future development trend of music smart classroom under the Internet of things technology, and expounds the good development trend of music smart education under the background of Internet of things technology. Throughout the development of music education, the original form of simply teaching singing has been eliminated. Improving music literacy and enhancing cultural communication have become the mainstream of music education. With the blessing of the development of science and technology, to enable students to actively and happily participate in music learning and build an efficient music wisdom classroom, we need to maintain the innovative quality and practical spirit and constantly meet new challenges. In the next stage, this research will carry out the practice in the form of group comparison, hoping to better construct the development framework of smart music classroom through the collection and arrangement of experimental data.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authors' Contributions

Qingyu Li and Jing He contributed equally to this work; they are co-first authors.

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