




## Computer-Aided Exploration of the Role of Music Education in Promoting Students' Innovative Thinking and Mental Health within the Context of Big Data and the Internet of Things

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**Abstract.** With the rapid development of the Internet, big data and the Internet of Things are also used in all walks of life. Compared with the traditional teaching mode, the combination of big data and Internet of Things technology and education field makes Internet education appear novel and efficient. For the traditional music teaching practice, it is a new breakthrough, an important form of accelerating the education reform and information development and has high practical value and education equity. By investigating the impact of Internet and music education on students' innovative thinking and mental health, this paper divides the investigated students into the conventional group, the music education group and the Internet music education group through whether they have received music education and the way they have received music education, and then calculates and compares the innovative thinking and mental health of the three groups of students through the SCL-90 scale factor and innovative thinking. The research results show that the innovative thinking and mental health of the students in the music education group are greater than those in the Internet music education group, and the innovative thinking and mental health of the students in the Internet music education group are greater than those in the conventional group.

**Keywords:** Music education; Innovative thinking; Mental health; Computer-Aided Exploration

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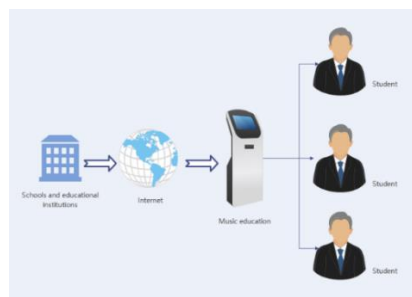
### 1 INTRODUCTION

With the development of big data and the Internet of Things technology, the current education and teaching are taking the fast train of the times and following the pace of the times into the new era

of the Internet. Education and the Internet are not only a conflict, but more a combination, so that the education model is more diversified. Because of the huge teaching resources of the Internet, the curriculum content of all disciplines has been comprehensively developed and updated, which is suitable for the latest teaching knowledge and teaching mode and has become a spiritual package for students [11]. The artistic and life-oriented curriculum content has also become a reality. It is also to help each student find their own learning methods and achieve teaching according to their aptitude. For the traditional music teaching practice, it is a new breakthrough and experiment. Therefore, this paper chooses music teaching in primary and secondary schools as an example [9].

Because most schools pay more attention to the education of subjects such as Chinese, mathematics and English, such as music, which enriches the students' spiritual world, has almost reached a dispensable level. For students who love music and have musical talent since childhood, they have no way to get more knowledge about music. It is also because of the particularity of music education that it is difficult for some primary and middle school students to receive systematic and rich music education from childhood [15]. Music is the most beautiful language of human beings. Primary and secondary school students should not be allowed to abandon music education because of the lack of learning resources. The development of big data and Internet of Things technology has just made up for this shortcoming. It can enable more gifted and interested primary and middle school students to learn music earlier and accept the influence of art [17].

In 2019, novel coronavirus broke out in Wuhan, China, and then novel coronavirus swept the world, so many schools had to stop offline teaching and switch to Internet teaching [12]. Due to the development of big data and Internet of Things technology, there are not too many obstacles to Internet teaching, so Internet music teaching can also be practiced. Internet music education is a new educational model, which is full of opportunities and challenges for the whole music education and is a new step from traditional education to new media teaching. The primary and secondary school stage is an important stage of a person's growth. This stage is not only the accumulation of knowledge, but also the initial establishment of a person's values (world outlook, outlook on life, values, aesthetics) and psychology [18]. Music education is an aesthetic education. Adding music education to primary and secondary school education can not only promote the development of primary and secondary school students' values and mental health, but also promote the development of primary and secondary school students' innovative thinking. However, music education in primary and secondary schools is not optimistic, and there is not enough attention to curriculum and innovation. The development of big data and the Internet of Things, the emergence of Internet music education, has injected new blood and vitality into music education in primary and secondary schools. In the diversified forms of teaching content, it can more stimulate students' love for music and let students actively learn [8]. As shown in Figure 1 below, music education in the Internet era.



**Figure 1:** Music Education in the Internet Era.

## 2 CURRENT SITUATION OF MUSIC EDUCATION IN PRIMARY SCHOOLS

### 2.1 Current Situation of Music Education in Primary and Secondary Schools

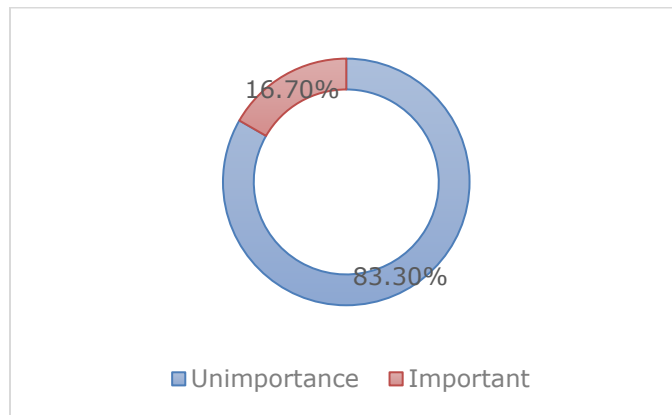
Music education, as an art education activity to cultivate students' sound aesthetic and world outlook, was promoted nationwide in the early stage. In recent years, the reform and development of music education in China, whether in secondary schools or primary schools and early childhood education, has made remarkable achievements. The promulgation and application of music curriculum standards, and the new round of music teaching reform and experiment have achieved phased results [13]. However, while many achievements have been made, there has been an unbalanced development of education in various regions. In the period of compulsory education in primary and secondary schools, music education belongs to the scope of aesthetic education. Through the author's personal experience and research, it is found that there are different views between parents and teachers in primary and secondary schools. The society has always been tolerant of music education, because the society needs such people to improve the artistic beauty of the society, but for many reasons, music education as a discipline to cultivate students' values and mental health has not received due attention [1]. The author investigated the current situation of 50 parents and 12 teachers (including music teachers) in Class 1, Grade 8, Middle School A, including:

As shown in Table 1 below, 48% of parents do not realize the importance of music education and think that playing is delaying students' learning. 14% of parents have in-depth knowledge of music education and support students to learn music knowledge. However, due to the cost of money and time, they only allow their own students to learn music knowledge in a fragmented way, lacking systematic music teaching. 18% of parents believe that students' learning music can only be a temporary interest and cannot develop for a long time. They think that students can learn music as a hobby, but if they want to take the art route, they must consider the family situation and the employment situation of the art path. Music learning is not achieved overnight, it takes a lot of time to practice, and many students cannot stick to it. This situation also makes many students gradually give up after being exposed to music. But there are also very active parents. Among the parents surveyed by the author, 20% of them think that music education is very important. They think that music education is conducive to promoting the development of students' values and mental health.

<i>Views on music education</i>	<i>Cause</i>	<i>Number of people</i>	<i>Proportion</i>
<i>Unimportance</i>	<i>Influence learning</i>	<i>24 people</i>	<i>48%</i>
	<i>High cost</i>	<i>7 people</i>	<i>14%</i>
	<i>Can't develop for a long time</i>	<i>9 people</i>	<i>18%</i>
<i>Important</i>	<i>Amount to</i>	<i>40 people</i>	<i>80%</i>
	<i>Can promote student development</i>	<i>10 people</i>	<i>20%</i>
	<i>Amount to</i>	<i>10 people</i>	<i>20%</i>

**Table 1:** Parents' Opinions on Music Education.

In the survey of teachers, as shown in Figure 2, except for Chinese and English teachers who think music education is not important, the other 10 teachers said that music education is conducive to promoting the comprehensive development of students' moral, intellectual, physical, aesthetic and creative thinking.



**Figure 2:** Teachers' views on Music Education.

Therefore, from the perspective of teachers, all schools, whether primary or secondary schools, are also paying more and more attention to music education. For example, organizing chorus and symphony in primary and secondary schools is more beneficial to enrich students' after-school life. In the eyes of teachers and schools in the past few years, students are still participants in exam-oriented education. A teacher can even let grades determine the quality of a student. This is a very terrible thing in itself. However, in the past two years, there seems to be little mention of the four words of exam-oriented education in China. It is more about the quality education of morality, intelligence, physical education, beauty and labor. It is also a sideshow that in addition to a series of major subjects such as Chinese, mathematics and English, music and sports have a greater proportion.

## 2.2 Problems in Music Education in Primary Schools

1. The condition of imperfect teaching hardware conditions. Many primary and secondary school music teaching equipment is not optimistic, and there are few music teachers. At the same time, there are no piano, electronic organ and music classroom in some basic classes, and some are only long time piano and some scattered equipment.

2. The school and parents have prejudice on the cognition of music education. Some teachers think that music lessons are unnecessary, but they cannot attend them, and no one is responsible for and inquiries about the quality of the lessons. Parents think music lessons are useless. They think that music teachers play movies to students in class, which delays students' learning. However, many scientists, educators, scholars or leaders have been interested in music. Many excellent students have studied music. These students have strong thinking and creative abilities. It is very important for students to learn at the pace of teachers. Teachers need to constantly study the appreciation and artistic treatment of songs. One of the important purposes of music lessons is to relieve students' learning pressure. And music teachers are also not paid attention because of their salary and professional title. Some teachers have the idea of breaking the can and breaking the can, and even changed their careers. This has lost the motivation and enthusiasm for music class research. Music

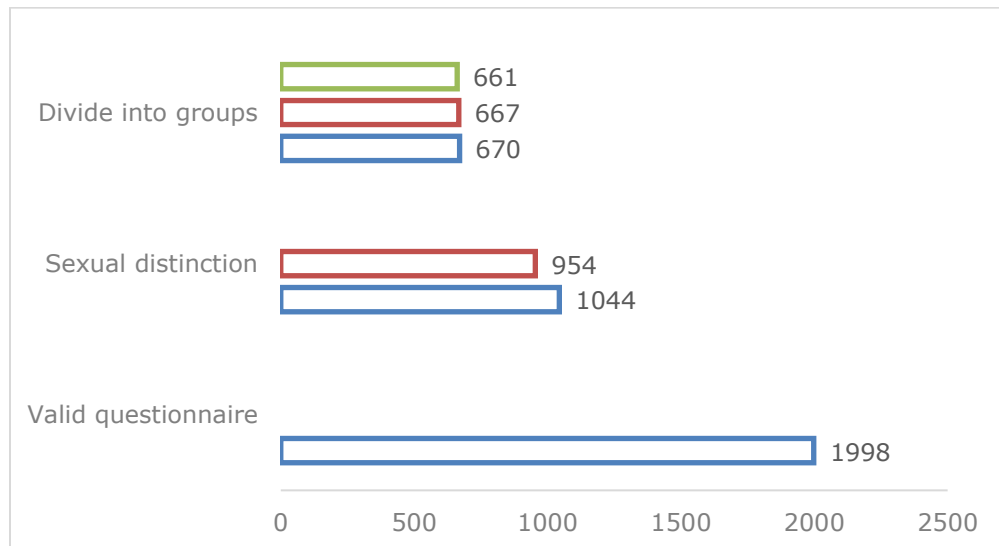
teachers are more perfunctory in preparing lessons, and they are also listless when participating in teaching and research activities. This is also an important reason for the failure of school music education.

3. Teachers have different levels of music education. Many schools have only one or two professional music teachers, and there are also teachers from other disciplines who teach music on behalf of them, which also shows the problem of insufficient teachers in music education. Even some schools' music classes will be occupied by teachers in other disciplines, resulting in music classes cannot show students the charm and vitality of music and the importance of music.

### 3 INVESTIGATION ON THE ROLE OF MUSIC EDUCATION IN PROMOTING STUDENTS' INNOVATIVE THINKING AND MENTAL HEALTH

#### 3.1 Investigation Object

The survey adopts the method of random stratified cluster sampling, and the respondents are middle school students in Chengdu, including Chengdu No. 7 Middle School, Chengdu No. 8 Middle School, Chengdu No. 18 Middle School, Chengdu Shishi Union Middle School and Chengdu Shude Experimental Middle School. The respondents sampled 20 classes, including 10 in junior high school and 10 in senior high school. A total of 2243 people, including 1998 valid questionnaires, with an effective response rate of 89.07%. There are 1044 boys and 954 girls. The respondents were divided into three groups, namely "conventional group", "music education group" and "Internet music education group", with 670, 667 and 661 people respectively, as shown in Figure 3. At the same time, the three groups of SCL-90 factors and innovative thinking evaluation criteria were compared and analyzed.



**Figure 3:** General Information.

#### 3.2 Investigation Results

1. Comparison of SCL-90 factors among three groups of students

Group	General group	Music Education Group	Online music education group
	n=670 x±s	n=667 x±s	n=661 x±s
Somatization	1.80±0.66	1.22±0.27	1.26±0.34
Obsessive-compulsive symptoms	1.94±0.67	1.24±0.29	1.30±0.40
Interpersonal relation	1.79±0.71	1.31±0.25	1.39±0.28
Depressed	1.93±0.69	1.26±0.20	1.22±0.37
Feel anxious	1.79±0.64	1.29±0.17	1.31±0.24
Hostile	2.01±0.62	1.16±0.22	1.24±0.38
Bigoted	1.98±0.54	1.32±0.30	1.37±0.46
Terrifying	1.67±0.56	1.14±0.21	1.20±0.22
Psychopathic	1.69±0.66	1.16±0.18	1.18±0.16
Average	1.84±0.64	1.23±0.23	1.27±0.32

**Table 2:** Comparison of SCL-90 Factor Results.

Through Formula (1), an initial matrix with  $i$  evaluation indicators and  $j$  groups of data is obtained. The smaller the index value is, the better the performance is, and it is recorded as a reverse index.

$$X_{ij} = (x_{ij})_{n*m} = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1m} \\ x_{21} & x_{22} & \cdots & x_{2m} \\ \vdots & \vdots & \cdots & \vdots \\ x_{n1} & x_{n2} & \cdots & x_{n*m} \end{bmatrix} \quad (1)$$

In the formula,  $X_{ij}$  represents the  $j$  evaluation index in the  $i$  group of data.

As can be seen from Table 2 above, the SCL-90 factors of the three groups are sorted as follows: conventional group>Internet music education group>music education group. The performance of various factors in the conventional group was much higher than that in the Internet music education group and the music education group, especially in the aspects of obsessive-compulsive symptoms, depression, hostility, paranoia and psychosis. While the Internet music education group is larger than the music education group in all aspects, the gap is small and not obvious. The students who have received music education are more mentally healthy than those who have not received music education, and the gap is relatively large. Compared with Internet music education, traditional music education is more conducive to the healthy development of students' body and mind.

## 2.Evaluation and comparison of three groups of innovative thinking

Group	General group	Music Education Group	Online music education group
	n=670 x±s	n=667 x±s	n=661 x±s
Fluency	4.54±1.47	7.31±0.74	6.20±0.98

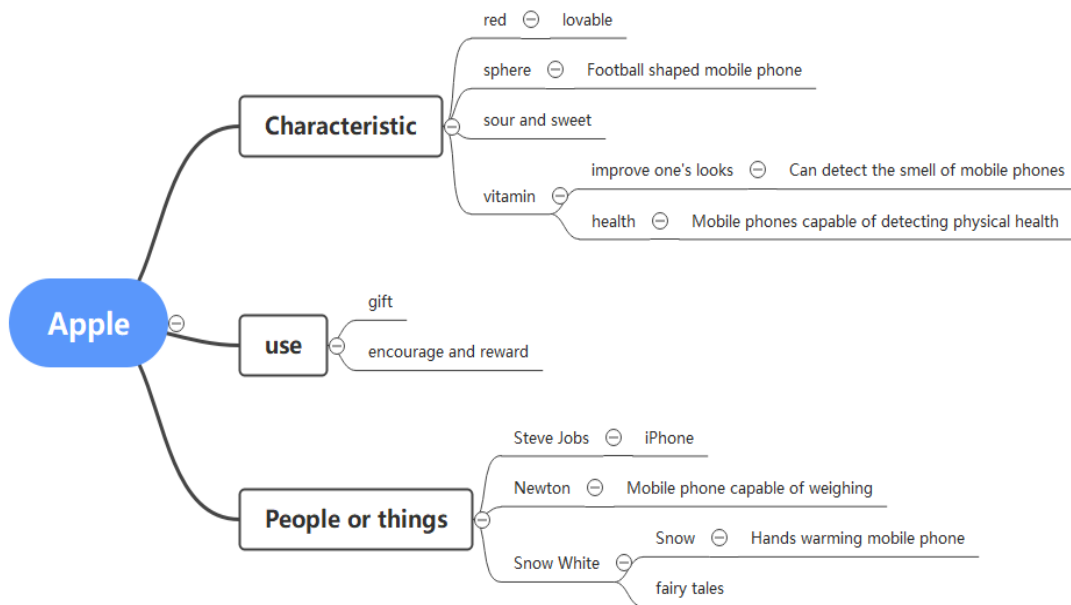
<i>Flexibility</i>	5.06±0.75	8.02±1.67	6.84±1.23
<i>Originality</i>	3.12±0.68	7.47±1.18	5.38±1.28
<i>Average</i>	4.24±0.97	7.6±1.20	6.14±1.16

**Table 3:** Comparison of Innovative Thinking.

The extreme value method is used to process the original data. The larger the index value is, the better the performance is, and it is recorded as a positive indicator. This paper is all positive indicators, so the selection Formula (2) is as follows:

$$x'_{ij} = \frac{x_{ij} - \min x_j}{\max x_j - \min x_j}, (i = 1, 2, 3, \dots, n; j = 1, 2, 3, \dots, m) \tag{2}$$

This innovative thinking assessment takes mobile phones as the thinking task and chooses Red Apple as the random thinking object. The students' creativity is shown in Figure 4 below. The evaluation of innovative thinking adopts the 10-point system and is calculated by Formula (2). As can be seen from Table 3 above, the three groups of innovative thinking are shown as music education group>Internet music education group>conventional group. Like the factor performance of SCL-90, the factors of the conventional group are smaller than those of the other two groups in all aspects, while the difference between the innovative thinking evaluation of the music education group and the Internet music education group is larger than that of the SCL-90, especially in originality, the music education group is significantly larger than the other two groups.



**Figure 4:** Deduction of Innovative Thinking Assessment Task.

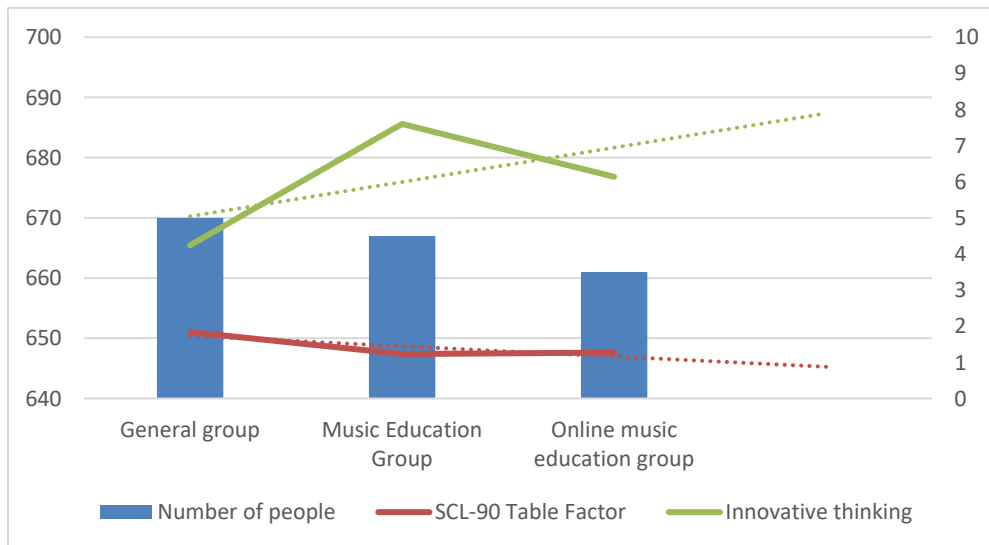
### 3.3 Result Analysis

Calculate the specific gravity using dimensionless numerical value in Formula (3).

$$P_{ij} = \frac{x'_{ij}}{\sum_{i=1}^n x'_{ij}}, (i = 1, 2, 3, \dots, n; j = 1, 2, 3, \dots, m) \quad (3)$$

In the formula,  $P_{ij}$  represents the proportion of the  $j$ th index of the  $i$ th group of data after standardization.

According to the survey results, as shown in Figure 5 below, among the factors in the SCL-90 table of students' psychological health, the psychological status is ranked as conventional group < Internet music education group < music education group, so the psychological status of students who have received music education is better than that of students who have not received music education. At the same time, compared with traditional music teaching methods, the psychological status of students who have received online music teaching is worse than that of traditional education methods. In the evaluation of innovative thinking, the three groups of innovative thinking are music education group > Internet music education group > conventional group, so the innovative thinking of students with music education is better than that of students without music education. At the same time, compared with traditional music teaching methods, the innovative thinking of students with online music teaching is worse than that of traditional education methods, and the gap is relatively large.



**Figure 5:** Comparison of Three Groups of Results.

Now music plays a very important role in educating students' growth. Music education can enrich students' imagination, innovative thinking ability, mental health and judgment ability. At this stage, the biggest role of music education in schools is to cultivate sentiment, promote students' physical and mental health and develop innovative thinking. As an important part of school curriculum, music should be given due attention. However, under the influence of traditional teaching concepts and "entering a higher school", the education bureau and school administrators have not fully recognized and paid attention to the importance of music education. They have focused on Chinese,



mathematics, English, politics, history and other disciplines, and have not paid enough attention to music. According to the standards of the new curriculum, the goal of music education is "educating people", and the aesthetic function and effect of music education are not limited to cultivating and improving the musical ability of the education [5]. At the same time, music education can make students study quietly and reduce their learning pressure. Music art is a kind of life activity, and music education is based on the cultivation of life spirit. Therefore, music education not only trains students to master more music knowledge, but also trains students to develop creative thinking and imagination.

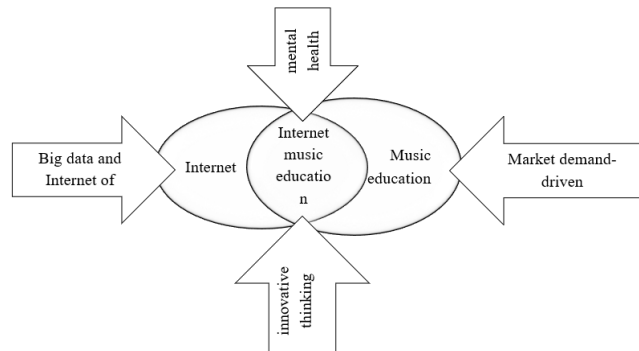
In recent years, with the rapid development of China's economy, the system reform of many basic education is also deepening. To meet the construction of the quality education system, how to cultivate students' innovative thinking and mental health has become the most concerned issue in today's society. In today's education, when we set up innovative ideas and change the traditional subject education, it is not to say that we have lowered the basic knowledge standard of previous teaching, but to let students master more knowledge and learning methods, let students learn music, and feel the fun and surprise brought by music, so as to promote the development of students' innovative thinking and mental health [7].

## **4 THE IMPACT OF BIG DATA AND THE INTERNET OF THINGS ON MUSIC EDUCATION**

### **4.1 The Role of Big Data and the Internet of Things in Music Education**

China has entered the era of comprehensive development of information. Big data and the Internet of Things are also one of the technologies that the country vigorously supports and promotes today. It can be said that big data and the Internet of Things have infiltrated into every part of our lives, affecting a wide range of aspects, and the impact on education is even more profound. The promotion of Internet education has also developed many online education platforms and online education systems, which not only help teachers keep up with the pace of the times, learn advanced teaching models and concepts, but also change teaching methods and greatly improve teachers' teaching ability and quality. What is more prominent is the new changes in traditional teaching models, as shown in Figure 6 below, the development of big data and Internet of Things technology, it is promoting the development of Internet music education. It is precisely because of the development of big data and Internet of Things technology that the "flipped classroom" and "Muke" taught by teachers online really become reality. At the same time, teachers and students in the classroom cannot only communicate face to face. Through the Internet, the time and space constraints in the classroom have been completely broken, and students can communicate with classmates, friends and teachers almost anytime and anywhere [16]. On the Internet, the supervision and management role of teachers is also the most important. Through mobile terminals, teachers can check students' learning situation and learning content at any time to ensure that students are studying seriously. At the same time, teachers are no longer dictating to impart knowledge, but rather providing resource sharing, implementing interest stimulation and individualized teaching, and disseminating personal thinking [3].

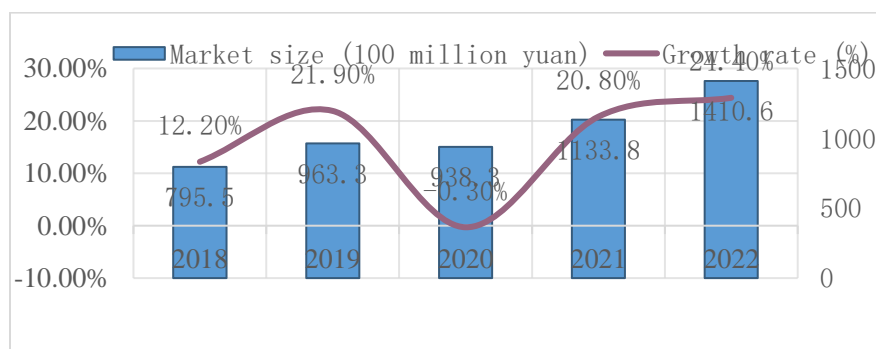
The United States and other developed countries have begun to adopt the method of distance vocal music teaching. For example, the history of Chinese and Western music, and the history of national folk music also have relevant online courses in China. Especially under the influence of the epidemic, the role of online courses is particularly important. Internet music teaching has the characteristics of online sparring, video teaching, after-school tutoring, etc. Online sparring refers to the realization of one-to-one or one-to-many teaching by students and teachers through computers, mobile phones and other communication tools, making full use of the convenient and fast features of the Internet.



**Figure 6:** Internet Music Education.

Video teaching is that teachers upload teaching videos and demonstration videos to the Internet after recording, so that students can find the learning content they need online anytime and anywhere. After-class tutoring means that students can record vocal music or play videos and share them with teachers in time. Teachers can also point out students' problems [14].

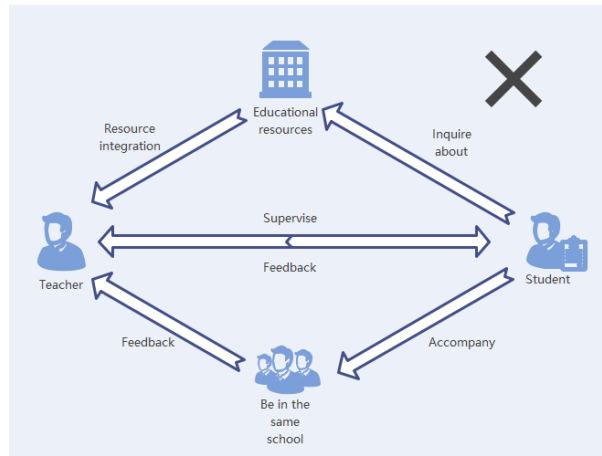
Among them, "Muke" is the most influential and earliest. As a contemporary mainstream network system, Muke has a wide range of coverage and relatively new technology. Like the mainstream Internet technology, Muke can basically be found, and their technology update is relatively fast. Many music courses can also be found on Muke, such as the history of Western music, and other online evaluations of Muke are also mixed. On the advantages, everyone thinks that Muke has many kinds of courses, and many free courses can also be discussed above, it allows people after learning to share their views and opinions. The disadvantage is that the curriculum is not innovative enough and the process is too cumbersome. Of course, for Internet courses, Muke is also a very successful model. Now many experts and scholars will use "Muke" as a typical case to study Internet education [6]. The scale of China's Internet music education is shown in Figure 7 below.



**Figure 7:** Scale of Internet Music Education in China.

## 4.2 Disadvantages of Big Data and Internet of Things Teaching

Internet education has no way of teaching by words and deeds and lacks face-to-face interaction. The level of teachers is uneven, and students' parents cannot clearly understand the teaching level of teachers [10]. Compared with traditional education, as shown in Figure 8 below, Internet education teachers are unable to effectively supervise students, students are unable to timely feedback the current learning situation to teachers, and students are also unable to communicate effectively with each other, resulting in low learning efficiency of students, ineffective teaching effect, and teachers are unable to understand students' learning situation.



**Figure 8:** Disadvantages of Internet Education.

There are many Internet education platforms. They all have a very serious problem, including "Muk", which cannot be solved even now. In other words, teachers and students cannot communicate effectively and track students' learning. The key points are as follows:

First, students sitting in front of computers or mobile phones cannot quickly adapt to online teaching methods. Network education lacks the interactivity and authenticity of communication between teachers and students. On some Internet education platforms, many; Teachers and parents agree that the biggest problem of Internet education is the lack of real emotion and interactivity [4]. When students have questions about the course and do not understand it, the teacher cannot answer the students' questions at the first time, resulting in the information between the students and the teacher is not synchronized, and the teaching content of many courses is increasing. If the teacher does not communicate with the students in time, the problems will only increase in the future. In addition, sometimes the teaching teacher and the online teacher are not the same teacher. If the students do not understand and doubt the course, the two teachers have different views, which will lead to disputes. Like music education, every teacher has his own teaching method, and some basic students are also very good. If a student has never been exposed to the teaching of music knowledge, the teacher will show him the position of some cavities and the position of the closed throat, and the student does not know the perception and learning at all. At the same time, teachers are also laborious. Music education requires teachers to control the whole classroom process, which will inevitably cause some problems.

Second, Internet education will lead to differences in students' proximity to groups and group awareness. Sociality is the essential attribute of human beings, and human beings are also group animals, which requires human integration into society. People need language communication,

information sharing and emotional communication. However, in Internet education, students and teachers, students and students only communicate with each other through communication tools, which will lead to that the relationship established by students is only a kind of interpersonal relationship under the virtual network state, and the interpersonal relationship gradually changes from direct to indirect, from diversification to simplification, losing the traditional friendship between students, and gradually becoming indifferent to the feelings of groups. Students who receive education in this way have a weak sense of unity and cooperation, especially when they are still in the ideological establishment stage, and too much exposure to Internet education is not conducive to the development of students.

Third, Internet education requires students to concentrate on learning, and requires students to have a high degree of concentration and autonomy. Adults occasionally watch their mobile phones to relax in their work and life, which can effectively control their time, while students have online classes at home, which inevitably causes distraction. The family environment is a very comfortable environment for students. In a comfortable environment, the brain will automatically release the signal of laziness, resulting in low learning efficiency of students.

## **5 REFORM MEASURES OF MUSIC TEACHING UNDER THE BACKGROUND OF BIG DATA AND INTERNET OF THINGS**

Appreciation of music works is an indispensable part of music education. But most music lessons are about appreciation of folk songs, dramas, symphonies and art songs. Because the music course is not equipped with a professional music classroom, coupled with the limitations of musical instrument equipment, playing environment and other factors, music teachers will choose multimedia teaching equipment such as projectors and computers as the teaching tools for music courses [2]. Teachers should find and prepare high-quality music, videos, pictures and text for music classes through the network. The addition of Internet technology can directly and fully make students' music audio-visual experience more complete, which is indispensable in music classes and even basic music teaching.

The Internet has also promoted students' ability to actively learn and appreciate music works, and the rise of the Internet has also given students more ways to learn. In addition to the traditional teaching mode, students can also choose their own way to choose their favorite music works on the Internet. In addition, in the classroom music teaching, because each class is only 40 minutes, and most schools have only one or two music classes a week, music teaching is insufficient in all aspects. It is difficult to improve students' music literacy in an all-round way only by relying on the learning content in the school music class. So participating in music extracurricular activities, such as encouraging students to watch concerts and musicals, is a very good way to improve students' music appreciation ability and cultivation. This allows students to be influenced by more and better music. In carrying out music extracurricular activities, it can expand the teaching time and content, effectively stimulate the interest in music, satisfy music hobbies, and enrich their spare time, which has an irreplaceable role in the development of students' mental health. In this aspect of resource sharing, Internet education will be particularly important.

Make full use of the advantages brought by the Internet to music education - convenience and resource sharing. Each teacher has different educational styles, and different teachers' teaching models are suitable for different students. This method can be used to find appropriate teaching content for different students on the Internet. At the same time, music education in schools can be improved from the following points:

Equipped with complete teaching hardware. For the requirements of music class hardware, instruments such as piano can be equipped with a rehearsal classroom similar to the dance classroom. There should also be certain requirements for the equipment of instruments in each

classroom. It is better to have equipment that allows teachers to conduct online courses, such as computers and projectors.

Improve the enthusiasm and professionalism of teachers and make teachers more standardized. It is very important to improve teachers' enthusiasm for teaching music education. Now students will face a complex social environment with challenges and opportunities in the future. Excellent psychological quality and comprehensive ability are the necessary conditions for them to participate in social competition. The task of training this ability naturally falls on teachers. Although music education is not omnipotent in cultivating students' psychological quality, it is also irreplaceable by other disciplines. Play a direct or indirect role through subtle influence.

## 6 CONCLUSION

The primary and secondary school stage is a crucial period for a person's growth. The key in this period is not only the accumulation of knowledge, but also the gradual establishment of a person's various values, such as outlook on life, values, aesthetics, and so on. Music education is a kind of aesthetic education. Adding music education to primary and secondary school education can promote the development of students' innovative thinking and mental health and is conducive to the comprehensive development of students' moral, intellectual, physical, aesthetic and labor. Today, with the rapid development of the Internet, it has brought us many benefits, but we should not be too obsessed with it. The Internet is a double-edged sword, full of all kinds of temptations. At the same time, compared with traditional education, Internet education cannot completely replace it. In some respects, it is not as effective as traditional education. We should give full play to the unique advantages of the Internet, help primary and secondary students learn more useful knowledge, and promote the development of students' innovative thinking and mental health. computer-aided technologies provide students with access to a wide range of musical resources and tools. Music composition software, virtual instruments, and digital recording equipment allow students to experiment with creating and arranging music in a digital environment. These tools not only make the learning process more interactive and engaging but also foster students' creativity and innovation by providing them with the means to explore and express their musical ideas.

By investigating the impact of Internet and music education on students' innovative thinking and mental health, this paper divides the students surveyed into traditional group, music education group and Internet music education group, and calculates and compares the innovative thinking and mental health of the three groups of students through SCL-90 factors and innovative thinking. The results show that the students in the music education group have higher levels of innovative thinking and mental health than those in the Internet music education group, and the students in the Internet music education group have higher levels of innovative thinking and mental health than those in the conventional group. Finally, according to the research results, this paper proposes corresponding reform measures for music education in the context of big data and the Internet of Things.

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