

Interactive Music Distance Education Platform Based on RBF Algorithm

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Abstract

INTRODUCTION: Since the 21st century, Internet technology has been developing rapidly, and the field of education has gradually broken through the traditional offline teaching mode; utilizing the Internet mode for distance education to break the time and space constraints of education and music education is more restrictive on time and space. However, if distance education can be better utilized to promote the development of online music education, it will promote the development of music education.

OBJECTIVES: This paper combines the past research results of the RBF algorithm, music education and distance education to study the construction of an interactive music distance education platform based on the RBF algorithm. The algorithm is used to improve the quality of the construction of the distance education platform, and the algorithm mainly optimizes the information dissemination path of distance education in the construction of the interactive music distance education platform and improves the reliability of the platform construction.

METHODS: The RBF algorithm is used to optimize the construction of the platform, and the case method is used to study individual schools to detect the actual application of music distance education and to find the strengths and weaknesses of the interactive music distance education platform, and to improve the weaknesses to enhance the platform.

RESULTS: The study found that constructing an interactive music distance education platform will not guarantee the quality of distance education; teachers and students can not quickly realize the effective communication between teachers and students, and some teachers can not better apply the distance education platform. However, there is still room for developing interactive music distance education platforms.

CONCLUSION: The research of interactive music distance education platforms based on the RBF algorithm has a significant positive effect on the development of distance education, art distance education, music education and so on in China. Therefore, it is necessary to continuously improve music education by utilizing online teaching methods and teaching resources.

Keywords: interactive music, distance education, RBF Algorithm

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1. Introduction

Since the 1990s, countless new technologies have emerged: the Internet, big data, and artificial intelligence. They have had different impacts on different aspects of society. The emergence of China's fast railroads, QR code payment, shared bicycles and online shopping have made

people from all walks of life understand that people live in a computerized and intelligent era. With the rapid development of science and technology and changes in social lifestyles, education and learning methods are facing severe challenges and opportunities. As far as the form of education is concerned, the focus of teaching is no longer on transferring knowledge of teaching functions from teachers and students trained at certain times and places to students trained individually but on the

development of competencies, especially the ability to think (Mangaroska et al., 2021).

Regarding teaching methods, government-led offline training is combined with offline online training. These networked concepts, technologies, education reform ideas and forms of distance learning break the boundaries of time and space, highlighting the benefits of openly sharing quality educational resources, saving time and costs, and influencing and reversing the traditional education model. Information technology represented by the Internet has influenced education, making it informative, modernized and intelligent.

The informatization of education has entered the stage of combining network technology and education. Workshops and guidelines on using ICT in education, distance learning and tele-learning have been organized and published in recent years (Aguilar, 2022). To strengthen and promote primary and high school education, the Ministry of Education has strengthened the national public service digital education resources and established a national cloud platform for primary and secondary education in 2021. E-learning spaces were fully utilized to improve the overall skills of teachers and students. The State has invested more resources and resources in the development of distance education than ever before.

Khan Academy (Khan Academy, a distance learning platform) uses simple tablet technology to record learning videos that students can play. An American high school teacher developed this teaching method to enhance the classroom when students become ill and leave after making progress. The teacher first created a video highlighting the entire course content process. Students are encouraged to study at home and come to class the next day to discuss the course content with the teacher or do homework. There has been an emphasis on personalized learning, but in the traditional education system, it is difficult for teachers to attend to every student. Teachers also have more time to interact, talk with students personally, and provide individualized advice (Brown et al., 2022). Can every student achieve better academic results if they receive personalized education early on? Currently, this is temporarily impossible in a traditional classroom, and learning models such as Khan Academy and Reverse Classroom are some of the most valuable parts of Khan.

Due to time, space and technology constraints, teachers must do everything possible to ensure that individual learning is not well reflected in traditional learning. Information technology's advancement, especially artificial intelligence and big data, has become widely used in education. Technology can capture the differences between all people in different ways, providing personalized and accurate learning. However, distance learning cannot replace face-to-face learning as education transmits knowledge and skills and develops and perceives emotions. In the field of music, music is unique. Learning music is the key to expressing emotions through music, and artificial intelligence is essential. The music learning process is an aesthetic and emotional experience

that modern AI machines cannot perceive or replace. Therefore, the authors suggest combining the benefits of developing distance learning technologies with offline education, which promotes distance learning and education in the long term and improves people's quality and emotions. Of course, education is a long-term process, and it remains new along with the rapid development of information technology in distance learning (Lu et al., 2022). There are also many problems and challenges in establishing e-teacher communities, such as the need for more standardization, specialization and systematization, a proper regulatory system, the source and quality gaps of e-teachers, and the future development prospects.

2. Background of the Study

The capitalization of distance education is a serious issue that needs to be investigated and corrected. 2020 will see an increasing need for e-learning with the prevalence of neo-crown pneumonia, segregated lifestyles and social distance learning (Fu & Liu, 2022). Ten years ago, education was still an unpopular investment. Few people invested in it. This is because education is a long-term process with slow results that can lead to a slow income recovery, while capital seeks to double up on employment and quickly generate huge profits. This explosion has demonstrated the potential of distance learning to a growing number of capitalists, attracting more attention and research and directly contributing to the growth of distance education. Since 2010, the distance learning business model has been innovative, but it can be categorized into three groups based on current performance models. First, speakers and headsets use artificial intelligence to attract users and traffic. This type of product profitability model is based on the value of the product itself. In addition, there are resource-matching templates such as distance learning platforms and VIPKID. This real-world example aims to give children the opportunity to speak individually and practice speaking with their teachers at home due to the needs of the students. Parents buy expensive packages and pay for more than 45 courses in one go. They are making huge profits and distributing capital and investment funds. This business model is mainly based on advertising and advertisement funds, and the unit costs have an impact and continue to grow.

It is necessary to attract capital flows continuously. Traditional operational financing needs be improved to support these capital flows which are leading to a vicious cycle of using investor funds and needing better operational information to attract more capital. The third model uses live streaming and video recording of well-known teachers in large classrooms divided into two parts. The number of students in each class can be increased to 1000, and then the classroom teacher answers questions about the class based on the attrition effect and the profitability of the teacher (Zelenkauskaitė & Albright,

2021). Examples include "First Class," "New Oriental," and "Highway." This favorable development model allows for mass production and provides income security. In addition to the innovation and development of cost-effective models, the long-term development of the "New Oriental" and the "Highway" is also due to excellent teachers and a unique education system for students of different ages. The management and application of data points are simple and fast, depending on the student's cognitive model, learning characteristics, and individual subjects' pedagogical principles and characteristics.

An analysis of the above model suggests that a third-generation online model would provide long-term and beneficial benefits to dual-teacher teachers. Briefly explain the reasons for profitability and discuss the nature of distance learning. What are the benefits of learning a profitable distance learning model? For economic reasons, increasing market share through mass advertising can only generate billions of dollars in marketing costs on publicly recognized platforms(Aguilar, 2022). In education, those at the forefront of distance learning can quickly win the trust of parents and students and monopolize the traffic between students and parents. This business behavior is based more on the logic of the Internet than on the logic of teaching and learning, which puts enormous pressure on distance learning efforts and revenues. Thus, the focus is more on profitability than on education itself. Education is not a tool for making money. Wood is ten years old; people are 100 years old. It is easy to be a tree but hard to be a person. The ultimate learning performance requires users to pay more attention to the quality of content and learning methods, which are the basis of competition for distance learning capital. Distance learning based on user care and needs, such as fundamental educational rights and psychology, adapts to human growth patterns and allows long-term development(H. Huang et al., 2022). Coordination of education to regulate the development of distance learning is also necessary without compromising the rights and uniqueness of students, education, music and development.

3. Research methodology

3.1 Distance Music Education System Design

In order to reduce the development risk, each system must be analyzed by system analysis and requirement analysis before starting. Software development is a systematic process, and the end product of software development is a software system. A software system is a living organism that follows the laws of software survival. According to this concept, the software life cycle can be divided into several phases: first, develop a plan, then analyze the plan according to the plan's requirements, then perform system design, programming, and testing, and finally, implement, operate and maintain the software. The design and implementation of the Lodging High School Distance

Music Education System are determined by the software life cycle, which includes system requirements identification, software system query and analysis, techno-economic analysis, software system flowchart and software system data flowchart(Bao et al., 2021). System analysis aims to determine if the system can be developed, if it is worth developing and if the current conditions can be applied. This system focuses on whether the problem can be solved and is worth solving. The system's feasibility was analyzed, and the system's flowchart and data flow diagram were obtained. Software requirement analysis is done through interaction and communication between developers and users. The methods used to analyze software requirements can be flexible, such as designing questionnaires, using questionnaires to understand business processes, or conducting interviews(Schaefer, 2023). The dialog between developers and users allows users to understand students' ideas and software requirements. System developers and users discuss, coordinate, and organize requirements. Both parties communicate with each other to accurately explain the actual requirements of the application users and convert them into a requirements document that identifies how the software system works and does it well.

3.2 RBF Algorithm

After building the predictive model, selecting the next measurement point is the key to process-based adaptive sampling. In selecting the next best sampling point using the measurement data, NBP has three generalized sampling criteria: a MaxTinc sampling criterion that applies to some sampling criteria and the MaxVar and MaxWVar data criteria. The standard Maxtin uses a second position, which may result in a maximum contour error at the next measurement point. When used on complex surfaces, the contour error may be negative at all selectable points, and the standard may not be correct. The traditional solution is to use the MAXVAR or MAXWVAR criterion with a non-parametric estimation method to calculate the uncertainty of each option. The MaxVar criterion uses the predicted maximum uncertainty exchange point as the next measurement point and updates the sample to the next prediction. The MAXWVAR criterion can be considered a weighted MAXVAR criterion, with the weights determined by the Euclidean meter between the selected point and the current measurement point, which helps to select the selected point in a low-density region. Above 3 criteria, some researchers have proposed and improved comprehensive data criteria to meet different validation requirements. However, the effect of complex shape ranges on capture accuracy still needs to be considered, and the distribution of sampling points makes it difficult to track the measured contours accurately and in time. A sketch of the PSO-RBF algorithm flow is shown in Figure. 1.

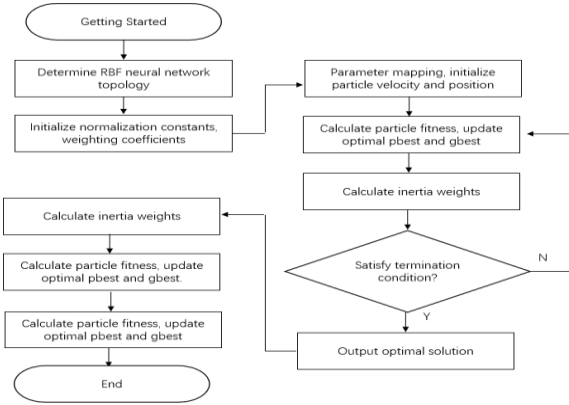


Figure. 1 Sketch of the DPSO-RBF algorithm flow
Neuronal networks with good nonlinear mapping and generalization capabilities have achieved good results in adaptive modeling and surface prediction(C. et al., 2021). Therefore, to correct the mismatch between the prediction error and the distribution of sampling points as well as the topological properties of the model under study, an adaptive sampling strategy based on RBF neural networks is proposed: the RBF neural network model is determined based on the data collected during the measurements. They are combining the geometric properties of selected points. The uncertainty of each exchange point is evaluated using the shear method, and the MaxCWVar data criterion is proposed as the basis for NBP selection. The measurements were added to the selected data, and the RBF network model was updated to select the NBP network. After several iterations, adaptive sampling of hazardous surfaces was accomplished(Xuan et al., 2021). Superior sampling capability (sampling accuracy and efficiency) for sheet metal cross-section sampling was ensured in raw and parametric states compared to other process-based adaptive methods and various NBP sampling criteria. The RBF structure is shown in Figure. 2.

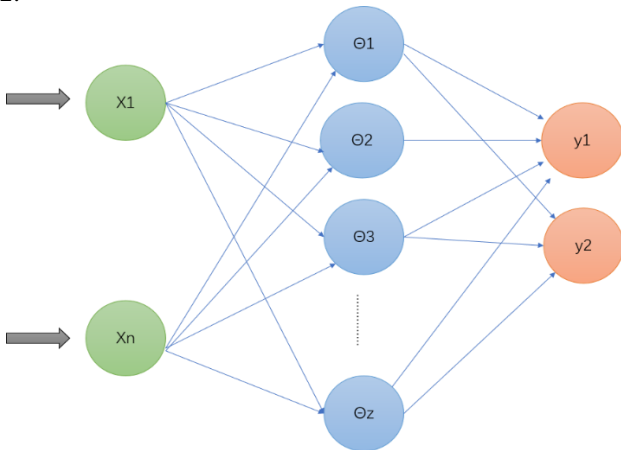


Figure. 2 Structure of the RBF

3.3 Uncertainty estimation and response modeling

The key to the sampling process is to select the next measurement point and place it where the uncertainty is most significant, regardless of the weight of the stroke. Since the measurement point selection is not model-based but process-based, it is critical to create a predictive response model based on the sampling point to predict the unvalidated region of the test part. To calculate the uncertainty of the following measurement point, the potential location of the following measurement point should be used as a candidate region for the measurement point(Bonaventura et al., 2022). The candidate group CM is independent, and M is the number of candidate points in the original candidate group. The YM response prediction series uses a response prediction model to predict the response of each switching point. The expected response variance for each candidate point is defined as the prediction uncertainty as follows:

$$Var(x_i^c) = E((\bar{Y} - y(x))^2) \quad (1)$$

where Y is an estimate of the candidate point, a topological point created to improve the accuracy of the model, actually improving the accuracy of the random variable.

$$P_n = \{(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)\} \quad (2)$$

The unbalanced elements in the vector are better inferred by the crossover method, and further equations can be derived as:

$$P_n^{(-q)} = \{(x_1, y_1), \dots, (x_{q-1}, y_{q-1}), (x_{q+1}, y_{q+1}), \dots, (x_n, y_n)\} \quad (3)$$

Based on the measurement of simple documents for each subset of P, the response prediction model Q is created, and the response prediction value Y is assigned to each subset of all candidates in the candidate group. Assuming that yx is the predicted value of the response model Kx measured at the alternate position, the error value of the separating knife at the alternate position x can be expressed as follows:

$$\begin{cases} \bar{Y} = ny(x^k) - (n-1)y(x)^{(-q)} \\ q = 1, 2, \dots, n; \\ m_k = m - k + 1; \\ h = 1 \sim m; \\ k = 1, 2, \dots, K. \end{cases} \quad (4)$$

In Eq. (4), the authors use the Jackknife method to compute the predicted response values of the predictive model based on a set of weighted replacement positions with given degrees of freedom and the predicted values n and (n1) for each subset. The error value of the folding knife reflects the difference between the perfect score prediction and the local score prediction. Therefore, the variance calculated for the fixation of the alignment point HTH in iteration k can be expressed as follows:

$$S^2 = \frac{1}{n(n-1)} \sum_{q=1}^n (y(x)^2 - t) \quad (5)$$

To estimate the uncertainty of the variable points, a prediction model based on sampled points or their subsets is used, as well as an RBFNN with high resilience and local nonlinear predictability. The RBFNN has a faster tuning speed and the ability to solve nonlinear problems compared to traditional neural networks and Krieger methods. The basic topology of the neural network RBF learning model is shown in Figure. One mainly consists of an input, hidden, and output layer. z is the center vector of the principal radial function. Utilizing the self-learning ability of the RBF neural network in adaptive scanning, the position data of the sampled points are determined based on the geometric value of the y attribute and the measured data x and y are used to input and output the RBF neural network. A nonlinear mapping relationship between the position data and geometric self-values was determined, and a response model was created to predict the responses. 80% of the samples were training packages, and 20% were test packages. The prediction model can be satisfied with geometric eigenvalues in the unknown $CHKx$ range. The combination of Eq. (5) calculates the uncertainty at each point of the variable and provides a reference value for selecting the next measurement point. Each measurement point is updated using X and Y , and the model is trained and predicted. After several iterations, real-time measurement points can be selected for adaptive sampling. The RBF neural network data processing is shown in Figure 3.

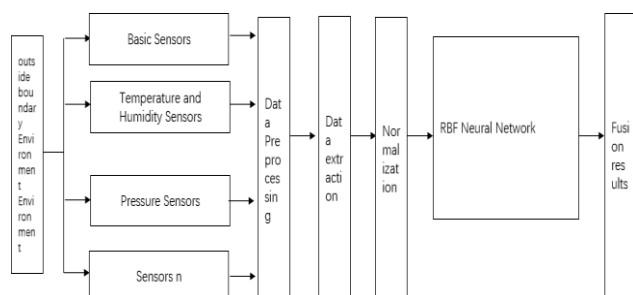


Figure. 3 RBF neural network data processing approach A radial function-based neural network (RBF) is a "foundation" of hidden layers created by performing a nonlinear mapping between input and hidden levels and a linear mapping between hidden and baseline levels. Compared to the widely used BP neural networks, RBF networks have the advantage of fast convergence and solving nonlinear problems. RBF networks consist of an input, hidden, and output layer. The input layer sends signals to the network, and the input layer has M nodes. As the core part of the neural network, the hidden layer performs nonlinear input signal computation, and the number of neurons is related to the learning data. The hidden layer consists of N nodes and is connected to the base layer through a weight vector W . Therefore, it is essential to determine the average C_j , the normalization constant and the weighting factor of the core radial function from the hidden layer to the original layer. The basic logical architecture of the RBF topology is illustrated in Figure. 4.

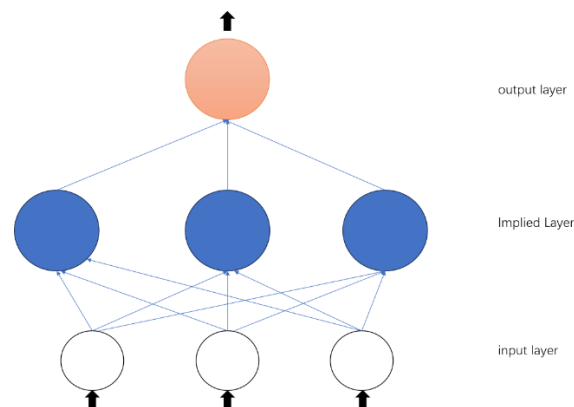


Figure. 4 Basic logical architecture diagram of RBF topology

4. Results and Discussion

4.1 Feasibility Analysis

The distance music education system utilizes the Internet and related programming technologies to enable teachers and students to teach in real life, provide students with more freedom and time to learn and open up new opportunities for teachers(English et al., 2021). Distance music education systems organically combine online and multimedia technologies to provide downloadable lessons, recommend high-quality courses to students, allow teachers to update their curriculum, and facilitate digital choices for students. This dramatically increases the freedom to share time between teachers and students. A distance music system has three main components: a course management system, a training application, and an information management system. The course delivery system manages music course exams, course updates, news updates and relevant national information management standards. The learning system includes student profiles, course studies, exams, textbooks, learning exchanges, information management systems (including website functionality), and user assignments. Once the user requirements have been defined, the software system can be run correctly, and a system feasibility analysis can be performed. The decisive factor is the ability of the software system to analyze user needs and expectations. If, for objective reasons, software development is not possible at this stage, the development plan should be revised or reissued(Filipa et al., 2022). Once the software development is approved, it moves to the next step. The techno-economic analysis includes the following aspects: Techno-economic analysis focuses on the software's functionality, performance and limitations. It assesses the technical risks, and the system has been successfully deployed within the available resources. It is widely accepted that hardware conditions, software operating environment and programming tools must be realized. Getting more profit from the investment in each project is desired. Software development includes system analysis, software development, hardware investment, system installation and maintenance.

When a software system is launched, the hope is to offset the costs, but the investment is risky, and the returns are often lower than expected. It is, therefore, necessary to compare the benefits of deploying a software system with the development cost and assess whether it is worth the investment. The design of the human-machine interface is one of the most critical factors affecting the user's work. Simple, functional and aesthetically pleasing interfaces are the criteria for interface design of software systems(Kocanaogullari et al., 2021). The Rolldown music system is based on an open web platform, a standard browser interface and an interactive graphical user interface. As a result, it can provide users with a better user experience. The level of usability may affect the system's operation, and the level of usability for potential users should be considered when designing the system. If the operating system is relatively complex, user training should be considered to familiarize users with its usage before use. The primary users of the lockdown platform are high school students and teachers who need basic skills online. Since the students are unfamiliar with the use of the website, they are interested in writing "user support documents" for the use of the website. Before creating such a system, it is necessary to analyze issues related to disability, handicap or liability. It is necessary to consider the existence of legislation, the illegal use of the content of the system, as well as the risk of copyright in the development of the system(Cao, 2021). Before developing a system, it is necessary to develop many solutions to system design issues and compare different system scenarios. Considering the cost of the system, the advanced technology, the functionality of the system, and the limitations of the various solutions, an entirely reasonable solution can be chosen.2016~2020 China Distance Education Market Size, as shown in Figure 5.

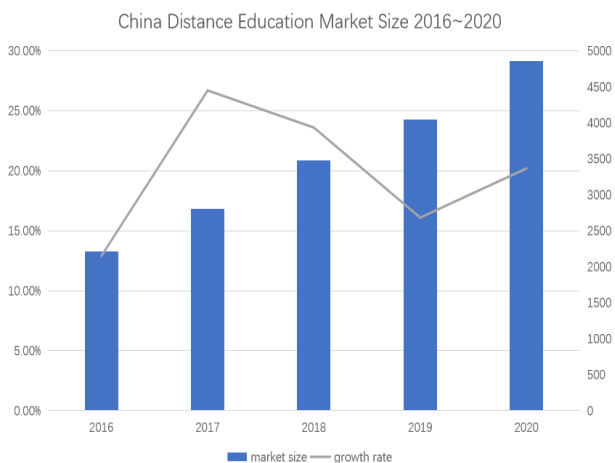


Figure. 5 China Distance Education Market Size 2016~2020

4.2 Operating Model of Distance Education

The program aims to educate children from kindergarten to first grade (ages 5-16). There are three common themes

across different age groups. First, students face problems practicing and cannot correct their mistakes quickly. Second, children need to be better supervised, and many parents need more time to monitor and supervise them. Third, the method could have been more effective, and parents needed more experience in music education to provide appropriate practice methods and programs for their children. In the long run, less effective teachers tend to teach slower. If students do not keep up with the repetition, they will become less interested in learning and stop playing the piano. Distance learning platforms solve these problems by allowing pianists to find the right teacher. Unlike AI dueling, which cannot control human emotions, AI dueling can also alert a child to unusual sounds and rhythms heard while practicing the piano. Students are interested in learning piano and continuing their studies. This is one of the advantages of the Distance Learning Platform, which utilizes a live music teacher's expertise and emotional support to help children improve their piano practice methods, address issues of size, rhythm, and consistency, and maintain their interest in piano learning. In traditional instrumental music instruction, teachers provide direct and practical advice. Such a personal counseling and distance learning platform is the same as counseling teachers in real life. The difference is that the e-learning teacher can directly contact the children and feel the students' feelings for each other. Problems also come up in time during piano practice. However, for the piano parent, offline learning requires the teacher to come home for lessons or the pianist to take lessons at home or a piano store once or twice a week for about 45 minutes each time. Add in the commute, and the time cost is even higher. With this method, online instrument teachers on distance learning platforms can help children and piano teachers avoid back-to-back training costs anytime, anywhere. With an average price of \$40-60 per practice, it is inexpensive and can be played more than once a week, improving the performance and efficiency of piano practice. A comparison of the efficiency of different distance learning platforms is shown in Figure 6.

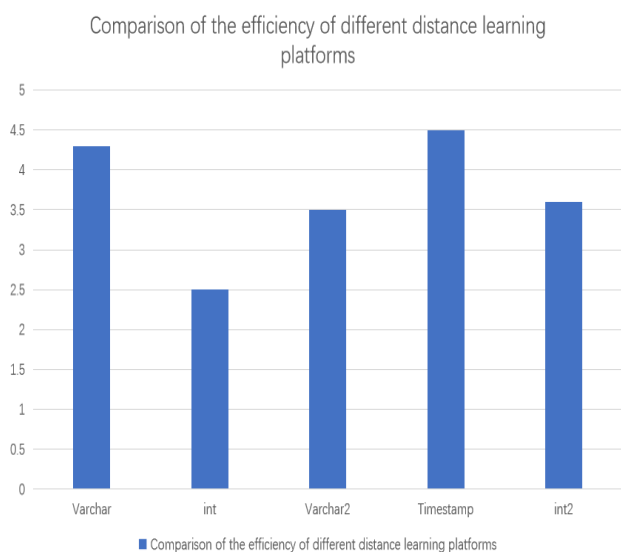


Figure. 6 Comparison of the efficiency of different distance learning platforms

Establishing professional teachers on distance learning platforms requires strict teacher source control, training, and a rigorous teacher evaluation system. For music teachers to operate on distance learning platforms, students must undergo seven consecutive monitoring sessions to ensure the quality of teaching. The distance learning platform already has postgraduates or graduates from universities and conservatories. When recruiting teachers, particular attention should be paid to young teachers' educational level, qualifications and experience. This is the first step in establishing a mechanism for distance learning. Teachers' resources should be reviewed, and following an assessment of education, listening tests should be administered in high schools and classrooms based on the examination levels of registered teachers. Formal training must be completed after a successful examination. After that, the learning team of the distance learning platform provides teachers with professional training on course content, teaching methods, and skills based on the course flow. This educational content creates a standardized system for understanding the widespread use of children's pianos, the consistency of classroom models and processes, and avoiding changes in children's pianos by changing teachers. As a result, all teachers must undergo various training, including software, phone calls, and five training modules before they begin work. In addition to pre-training for teachers, the distance learning platform has invested in many professional resources to create the MIUK Artistic Talent Pool, improve the professionalism of teachers, and develop a vocational training community. To improve the quality of teacher education, university teachers are invited to register on-site or attend small-scale courses to exchange teaching skills. Finally, rigorous standards for teacher instruction are proposed. Teachers must take all online accompaniment courses seriously, monitor teacher quality, disrupt instruction, and fundamentally standardize online accompaniment teams and music teacher standards.

Combat trainers must follow rules and regulations, and violators must be appropriately penalized, for example, if a student decides to forfeit time. To ensure the quality of classroom instruction and student satisfaction, the use of audiovisual materials in the classroom not only regulates teacher behavior but also protects the rights of students and teachers.

Creating and constructing a professional online music platform should be based on an approach that covers all pre-school, curricular and other service needs, such as pre-school service skills. At the current stage of assessing children's performance, special tests on music theory based on parental requests and exam results and designing courses should reflect the professionalism and good work of the distance learning platform down to the last detail. Developing the musical skills of child pianists in content production can also increase brand awareness. For example, introducing musical knowledge, such as Music Planet 2.0, is more than an instrumental exercise. The activities of a distance learning platform are reflected in three main areas: (1) the placement and selection of target groups, for which the pedagogical nature of the online tool reflects the value of the distance learning platform. The application and development of distance learning platforms can continue due to issues reflecting the uniqueness of distance learning platforms. (2) Creating a professional teaching group for parents and children is fundamental to piano education. A professional music teacher can easily be trusted with children on a distance learning platform, so the teacher's qualifications need to be checked. (3) The oral structure should reflect the skills of the distance learning platform in terms of branding, learning outcomes and service capabilities. This professional online music education platform allows this new approach to music education to develop in learning outcomes and service attitudes. The RBF algorithm with different sampling points is analyzed, as shown in Figure. 7.

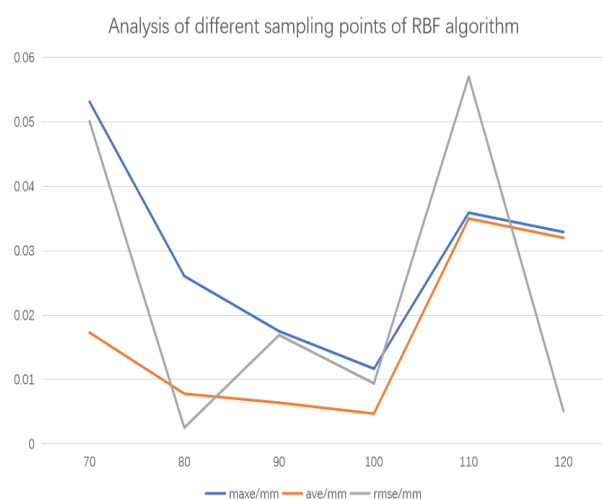


Figure. 7 Analysis of different sampling points of the RBF algorithm

4.3 Teaching model

Participating teachers on the distance learning platform should undergo a comprehensive assessment, including teacher training, classroom work experience and listening standards to ensure the level of professional teachers. Only those who have passed the essential qualification examination can proceed to the next stage of vocational education and training(Wiener & Bradley, 2023). The teacher selection process is as follows. The International Platform for Collaborative Distance Learning (IPDL) categorizes students of different ages into four groups: classroom, high school, and university. Teachers seek their skills. In addition, teachers learn the basics of geography, age, personality, classroom habits, and awards. They also gather information on the following student pairs: sound tests, this section checks for pitch, rhythm, etc. The sound test and music theory fundamentals must meet the requirements of the test. One of the KS-599 exercises may be used if the test is informative. The teacher plays the simulator three times, and the applicant must round errors to a certain level of accuracy and not drop below the crossroads. The purpose of the session is to ask a background question, such as how teachers deal with stuck black screens and Internet connections before class and how to deal with them. This includes psychological issues with students, using learning software and addressing special situations. Having opted for teacher qualification, teachers are still operating on a distance learning platform, but teachers must be adequately trained to start.

There are five types of vocational training, which are not related to musical genres but mainly promote teachers' attitudes and the learning process. The training includes software training, which involves teaching facilities and tools, language training, classroom teaching, basic systems training, and classroom communication (Chow et al., 2021). After all levels of assessment and training, one can formally take over this task. However, in this role, the rules and regulations of the trainer must be strictly adhered to. The accent can be divided into three parts. The first part is the high voltage cable that cannot be touched, which means that others are strictly prohibited from representing others in the classroom, using language that attacks a student's or parent's argument, and violating discipline. The check cuts \$500. Second, regarding disciplinary matters, absences, delays, early retirement and vacations are specific criteria and limitations. Disciplinary requests for reductions are reduced for aggravating circumstances; employment issues such as difficulty in learning, impatience and laziness, and career issues such as complaints about false learning and unnecessary repetition of training, and complaints about noise, discussions and the environment in which children drink(Zhang et al., 2021). Upon inspection, the above \$200 complaint will be deducted and immediately suspended. The distance learning platform has a large team of online trainers. Currently, there are over 30,000 instructors online. The higher the number, the higher the probability of problems. Limiting people's ethical deficiencies, teaching mistakes and behaviors do not meet

teachers' standards. Teachers have direct contact with students and parents to improve the application of the image of the distance learning platform. The platform develops individual piano lessons for children of different instruments, ages, and classes. By providing students with easy access to online teacher training, the distance learning platform requires each teacher to be suitable for all pianists. In addition to matching students with appropriate grades, teachers must patiently encourage student instruction and guidance in solving piano problems.

Children's piano is concentrated in the 5-16-year-old child and teenage years, and in both cases, the student's attention span is limited. Some children are naturally active, fun, seated or stimulated by external factors, which can lead to relaxed piano movements and easy distractions. They are ubiquitous. How can the teacher reduce the frequency or duration of absences? This involves managing the child's physical and mental characteristics, better applying teaching strategies, communicating information to the student and repeating the exercise's content until the student can digest the task and content. A feature of distance learning is interactive learning between the right teacher and student. Through instruction and interaction with the instructor, social and human leadership can be experienced in practice. If students are distracted, they will bring tears back to the classroom and the content they are learning. However, there are some limitations on the Internet. If the child is too far from the piano tape, the teacher cannot control the student's mind and body because the training is just ahead. That is why, in this case, the parent and child must train together. That is why there are two coaches: one is a partner and mentor, and the other is a music content coach. Therefore, the key to solving the problem of self-control and low attention span is to train the skills and experience of assistant teachers and how to cope and respond to this phenomenon. However, due to the limitations of being online, distance learning platforms cannot provide online instructors with reasonable opportunities and specific ways to address the problem. Distance learning platform risks are categorized as shown in Figure 8.

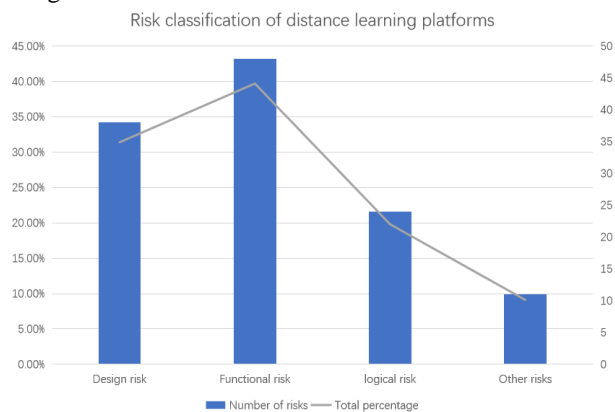


Figure. 8 Risk classification of distance learning platforms

When learning piano, children often experience mispronunciation, rhythmic errors, lack of understanding and inability to read music correctly. How can one continue to learn music? Therefore, playing music requires precision, and after a solid foundation has been laid, the music must be read carefully before playing. Therefore, due to the importance of reading music correctly, the requirements of the distance learning platform for piano practice depend heavily on reading music correctly. The Social Teacher focuses on improving the students' reading problems, especially on the lesson page, with four tabs at the top (Heineke & Vera, 2022). These four tabs are used when the student needs help with pitch, rhythm, fingerings, and composition consistency. The relatively high level of musical errors suggests that the next practice session could focus more on pitch, rhythm, or fingers. In addition, the child's hands and the first button presses required the teacher to repeatedly and patiently remind the student. Therefore, the distance learning platform focuses on children's ability to read music correctly while playing. Tutors can immediately correct pronunciation, rhythm, and finger errors to reduce the frequency of errors in reading notes while playing music, setting the stage for children's learning in the primary classroom.

5. Conclusion

The development of distance education has significantly contributed to the growth of online music education. During the 2020 Fight against NCRP, leading music and art schools launched online courses, online instrument practice, online art exams and online concerts. For example, the online music brand Cloud Shanghai Conservatory of Music includes models such as the "Cloud Choir" to ensure the implementation of teaching practices. Compared with traditional learning methods, online music learning spaces utilize modern information technology to overcome time and space barriers and achieve high-quality resource utilization. Of course, there are problems with studying this path, such as the effectiveness of online music education, the need for teaching quality, and skepticism about the source and authenticity of teachers. Despite the skepticism of many about online music brokers, students are growing. Online music education is an essential addition to music education and influences the future of music education. Therefore, it is essential to ensure that online music education grows well in the long term to promote the future of music education and music education.

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