Research Article

Construction of Algorithm Model in Artificial Intelligence Interactive Art Teaching Evaluation System from the Perspective of Core Literacy

Xiangwei Bu

Academy of Fine Arts, Inner Mongolia Minzu University, Tongliao 028000, Inner Mongolia, China

Correspondence should be addressed to Xiangwei Bu; dongxiaojie@imuc.edu.cn

Received 19 April 2022; Revised 6 May 2022; Accepted 16 May 2022; Published 20 June 2022

Academic Editor: Hasan Ali Khattak

Copyright © 2022 Xiangwei Bu. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Art teaching is not only an important part of basic education but also an important subject of core literacy education, and the cultivation of core literacy is also a long and lasting process. In order to change the original teaching mode, reform the teaching concept, and cultivate high-quality all-round talents, this paper integrates artificial intelligence interactive teaching method into the art teaching process from the perspective of core literacy, which can not only increase the classroom interaction, improve students’ enthusiasm, and conduct multidimensional evaluation on students’ art work performance, moral sentiment, appreciation ability, creativity, and imagination. While paying attention to cultivating and improving students’ comprehensive quality and ability, the all-round development of students’ moral, intellectual, physical, artistic, and labor ability is improved.

1. Introduction

Art teaching (MSJX) is a kind of quality education recognized by today’s educational circles. It is also an art discipline with rich colors and certain cultural background. (MSJX) course can not only train students’ visual acuity in color, line, and image but also cultivate students’ mind, cultivate their sentiment, and increase students’ imagination and creativity. When analyzing the significance and methods of cultivating aesthetic ability in primary school (MSJX), Z. Chongguo [1] said that with the reform of the new curriculum standard, in relevant (MSJX), teachers are required to pay more attention to cultivating students’ art aesthetic ability and better cultivate students’ comprehensive literacy in art learning [1]. Improving students’ quality and ability can enrich their inner feelings and cultivate their feelings. Core quality teaching is the comprehensive expression of students’ knowledge and skills, attitudes, values, emotions, and so on. In the practical significance of studying the core literacy in the new era, C. Jie [2] said that the core literacy, as a popular concept in China and even the international education community in recent years, is mainly due to the ability and literacy system constructed to effectively meet the needs of the rapid development of information technology and knowledge economy in the 21st century. Although the basic connotation of core literacy is still uncertain so far, it does not affect its becoming one of the important considerations of educational reform and policy-making in the new era [2]. H. Xiaojian [3] also analyzed the significance of art core literacy in the construction of visual culture in middle school. He believed that the integration of core literacy education can enhance the improvement of students’ comprehensive quality such as aesthetic judgment, creative practice, and cultural understanding, which is not only conducive to cultivating students’ art consciousness and self-cultivation quality but also brought developmental changes to aesthetic education [3].

With the development and improvement of China’s art education system, the current teaching concept has been greatly improved compared with the past. Art education from the perspective of core literacy has also been an important content in current teaching and has...
comprehensively innovated and adjusted the implementation of teachers’ teaching mode, teaching content, and classroom participation in teaching, so as to fully integrate core literacy education into art teaching practice as far as possible, so that students can be guided by moral and ideological education while learning art. Y. Mingyue [4] said in the new thinking of high school art education under the core quality that with the gradual deepening of teaching courses, art curriculum standards also put forward higher requirements. Teachers should use innovative teaching methods through the combination of art edification and education, so as to enable students to have a deeper understanding of the world and express their feelings through art creation and to improve students’ aesthetic appreciation ability and the ability to appreciate and create beauty [4]. Yan and Zhang Yan Shuxia (2021) improved the modeling method without reducing the modeling design requirements, improved the modeling accuracy, optimized the DC characteristic modeling method of neural space mapping (neuro SM), and proposed a new neuro SM suitable for heterojunction bipolar transistor (HBT) [5]. Zhu et al. (2020) saying that cultivating students’ core literacy through art education has become one of the important teaching tasks of art education in school education in China. Strengthening art education in school education and implementing the countermeasures to develop students’ core literacy are aimed at effectively improving the teaching quality of art education in China [6]. With the continuous application and development of artificial intelligence technology, high technology has been gradually introduced into school classroom teaching. The application of artificial intelligence not only helps to carry out online classroom and after-school counseling in teaching, it can also provide students with accurate learning services. D. Muhan [7] believes that the application and practice of artificial intelligence in teaching management have entered an unprecedented era of rapid development. Machine learning algorithms represented by deep learning have achieved great success in the field of machine vision and speech recognition and provide rich continuous data resources, such as cloud computing and big data [7]. Man Jiangtao et al. (2021) analyzes the application of PID controller in the design of ship antirolling tank controller and puts forward the design method of optimizing PID controller. The simulation experiment shows that the improved and optimized variable parameter PID controller can effectively control the ship rolling angle and fin angular velocity and improve the antirolling efficiency [8]. In the application of artificial intelligence technology in teaching, W. Manfang [9] considering that with the rapid development of modern information technology, the application of artificial intelligence in social life is also continuously promoted. In the field of education, artificial intelligence assisted teaching has also become a hot spot, and teachers in various schools are also constantly exploring the application of artificial intelligence in teaching [9]. This research is to construct and introduce (RGZNJHS) (MSJX) method into the teaching system under (HXSYSJ) and evaluate the intelligent teaching algorithm model system, so as to improve the intelligent level of (MSJX) and students’ comprehensive literacy.

2. (MSJX) Core Literacy Cognition

Core literacy in teaching cognition refers to the combination of learning knowledge, ability, emotion, attitude, and values gradually formed by students in the process of receiving education. It is also the necessary character and moral education required by students’ later development. The core quality of (MSJX) is to pay attention to the development of students in the training process, rather than the purposeful results. It is an important guarantee for students to adapt to the society, continue to learn, and achieve all-round development in the future. A. Wenjing [10] believes that as a humanities discipline, the practice of art education is particularly important in the rapidly developing education industry [10]. Huang Fanming (2021) has reported that the mobility of transistors based on new D-A polymers has generally exceeded 1 cm~2v-1s-1, exceeding the level of amorphous silicon transistors (the highest value has even been close to 100 cm~2v-1s-1). Moreover, these conjugated polymer transistors also show ultrahigh stability, so they have practical value in a real sense. More importantly, these D-A polymer materials have nearly amorphous [11].

S. Lingling [12] believes that at this stage, China’s education has entered the era of artificial intelligence. In this environment, teachers should not only cultivate students’ knowledge and skills but also guide students to form good learning ability and character [12]. Artificial intelligence interactive art teaching from the perspective of core literacy can not only cultivate students’ core values but also improve students’ enthusiasm for learning art and promote students’ all-round development through effective teaching mode. With the continuous development of social economy, people have a stronger awareness of appreciating works of art, and more and more parents and students are interested in art learning. According to the statistics of relevant survey data, it is found that in the training and learning of art, the number of students in music and art has always been among the top several. In view of the increasing number of art students and the demand for high-quality talents in society, it is more necessary to strengthen the cultivation of students’ core literacy in art teaching. For example, the proportion of relevant students in (MSJX) is shown in Figure 1.

Figure 1 shows the relevant proportion of different art students at present. It can be seen from the data that the largest number of art students is music students, followed by art students. The proportion of other relevant art students, performance students, and language students has significantly decreased. Therefore, when the number of art students is large, it is more necessary to strengthen the cultivation of the core quality of art students and then to improve students’ comprehensive ability and life values.
3. Construction of Intelligent Teaching Evaluation System from the (HXSYSJ)

From the (HXSYSJ), the artificial intelligence teaching evaluation system makes use of the characteristics and advantages of artificial intelligence technology, such as intelligent perception, big data analysis, intelligent recognition, and automatic decision-making. Based on the (MSJX) knowledge, it carries out intelligent machine visual interpretation and recognition scoring on the images and graphics of relevant art works and comprehensively carries out the teaching mode of interactive (MSJX) under artificial intelligence through the scoring data results. Diversified follow-up evaluation on classroom interaction effect, aesthetic judgment ability, and teaching results are conducted.

4. Student Materials and Grouping Methods

The analysis object of this study is randomly selected two classes of grade 7 students in a full-time ordinary school in 2021, including 21 girls and 34 boys, with an average age of 13.7 ± 0.6 years. The class continues to use the conventional (MSJX) methods. In another class, there are 28 girls and 29 boys, with an average age of 13.5 ± 0.8 years. The students in this class adopt the interactive (MSJX) method of artificial intelligence on the basis of conventional teaching. In the later stage, the students’ work scores and related comprehensive literacy effects of the two classes were observed, respectively.

From the (HXSYSJ), the algorithm model in the design of (RGZNJHS) (MSJX) evaluation system needs to use the relevant basis function formula to analyze and calculate the work performance and comprehensive literacy of the research object. Among them, the score results of students using (RGZNJHS) (MSJX) need to be calculated and analyzed by using the arithmetic mean and standard deviation rate, as shown in the following formula:

$$\sigma = \frac{1}{n-1} \sqrt{\sum_{i=1}^{n} (x_i - \mu)^2},$$

(1)

$$\mu = \frac{1}{n} \sum_{i=1}^{n} x_i,$$

where $\mu$ is the calculation result of the standard deviation rate of the basis function; $\sigma$ is the arithmetic mean of the input sequence $x$ of the basis function.

Secondly, the sixth-order polynomial depth iterative regression basis function of fuzzy neural network with complex analysis and recent change law of control data needs to be used, as shown in the following formula:

$$y = \sum_{i=1}^{n} \sum_{j=0}^{5} A_j x_i^j,$$

(2)

where $A_j$ is the coefficient to be regressed of the $j$ order polynomial in the function formula; $i$ is the traversal pointer in the function formula; $n$ is the total number of nodes of the previous neural network in the function formula.

5. Observation on the Effect of Core Literacy Teaching Evaluation System


There are no specific documents or standards corresponding to the teaching objectives of each lesson. Therefore, in classroom teaching, we need to integrate the curriculum objectives and core literacy, so that classroom teaching has a learning direction and students have a clear sense of nutrition. Teaching system evaluation can integrate relevant learning knowledge, and artificial intelligence technology can also be introduced to establish the theoretical basis of intelligent teaching evaluation system, so as to improve teaching evaluation methods, adjust teaching ideas, and find a practical path for students in learning and education. In this case, if you want to give better play to the role of the teaching system and improve the teaching ability, you need to choose a reasonable teaching evaluation system. The evaluation system should not only assess the basic theoretical knowledge of teaching but also evaluate the comprehensive quality indicators of students in all aspects. In order to better analyze the algorithm model in the (RGZNJHS) (MSJX) evaluation system from the (HXSYSJ), this paper compares and analyzes the sensitivity and specificity of core literacy (MSJX) to conventional course teaching and intelligent interactive art teaching, as shown in Table 1.

Table 1 shows the comparison of sensitivity and specificity of artificial intelligence teaching evaluation system to different teaching method systems from the (HXSYSJ). Before using core literacy teaching, the sensitivity and specificity of intelligent interactive (MSJX) are lower than those of conventional teaching, but after adopting core
literacy teaching method, the relevant data integrated into intelligent interactive (MSJX) method are significantly higher than that of conventional teaching method. There was significant difference between the two groups after teaching, \( T < 10.000, P < 0.05 \). The comparison results were statistically significant.

In order to analyze and evaluate the teaching effect of core literacy more intuitively, the sensitivity of conventional course teaching and intelligent interactive (MSJX) method system is visualized, and Figure 2 is obtained. Figure 2 shows the sensitivity comparison visual diagram of two groups of different teaching method systems, which intuitively shows that the sensitivity effect is better after using the core literacy teaching evaluation system and the application of the core literacy teaching evaluation system is conducive to intelligent interactive art teaching, can promote the sensitivity of intelligent interactive art teaching, and then improve the quality of intelligent art teaching.

In order to more intuitively reflect the specificity of (RGZNJHS) (MSJX) evaluation under the core literacy, the specificity data in Table 1 are visualized, and Figure 3 is obtained. Figure 3 shows the specificity comparison of different teaching methods and systems under the core literacy. The results show that the intelligent interactive (MSJX) system under the core literacy algorithm model has higher specificity, and the difference between the two groups of comparative data has obvious changes. It is indirectly believed that the intelligent interactive (MSJX) system has better specificity, which is conducive to improving the evaluation of (MSJX) and students’ core literacy.

### 5.2. Analysis of Core Literacy of Teaching Evaluation System

In the practical application of relevant teaching evaluation system, it can combine various practical teaching in the classroom, optimize teaching methods, increase classroom interaction and students’ learning initiative, enable students to quickly invest in classroom learning, help to cultivate students’ good quality, and improve students’ comprehensive ability in the learning process. In relevant analysis and research, it is also believed that comprehensive practical teaching evaluation and effective combination of core literacy education in schools can enable students to establish a good outlook on life and values while learning knowledge [13]. Sun Xueqi (2022)’s analysis shows that the double loop overload autopilot with PID controller can stabilize the statically unstable projectile, and its steady-state output will not be affected for different aerodynamic parameters. The autopilot has no steady-state error for the constant zero error input of the steering gear, while the classical overload autopilot produces steady-state error for the same zero error input of the steering gear. Compared with the dual loop autopilot with integral correction, the dual loop autopilot with PID controller has faster response speed. The simulation results show the effectiveness of the theoretical analysis in this paper [14]. Through the analysis and comparative observation of the sensitivity and specificity of different teaching under the core literacy system, the comprehensive scores of students with different teaching methods are compared to better analyze the impact of core literacy teaching on intelligent interactive art teaching, as shown in Table 2.

Table 2 shows that under the core literacy teaching, the work performance, teaching mode, classroom effect, and teaching results of students in intelligent interactive teaching have been significantly improved. There is a significant difference in the comprehensive performance of students in the two groups of teaching methods, and the comprehensive performance of intelligent interactive (MSJX) is significantly higher than that of conventional course teaching.

In order to more intuitively analyze the intelligent interactive (MSJX) under the core literacy teaching system and
visualize the students’ comprehensive scores, Figure 4 is obtained.

Figure 4 shows the comparison of students’ comprehensive quality under different teaching methods, which can more intuitively see that the comprehensive effect of using the intelligent interactive (MSJX) method from the(HXSYSJ) is better, and the students’ scores in all aspects are significantly higher than those taught by conventional courses. It also indirectly shows that using the intelligent interactive (MSJX) system can effectively promote students’ comprehensive scores and core literacy, then improve the effect of teaching evaluation system, and promote the all-round development of students’ morality, intelligence, and physical beauty.

6. Prospect of (RGZNJHS) Art Teaching

The future education will be the combination of man-machine, man-machine, and Internet, focusing on people, aiming at cultivating a new human education of “integration and wisdom”15. Now, this innovative educational concept has become a new trend of educational globalization and intellectualization [11]. Subsequently, with the diversified development of the education industry, (MSJX) also mentioned a significant improvement. Art not only has high artistic value but also can guide students to try to explore beauty and improve their aesthetic and artistic ability. (MSJX) is a key way to promote students to create, feel, and understand beauty [16]. Under the background of the new curriculum reform, (MSJX) needs to pay attention to the art unit teaching for the purpose of improving core literacy, guide students to form correct learning attitude and aesthetic concept, strengthen aesthetic ability and appreciation ability, and make students have inner pleasure during art learning [15]. In real teaching, some students often stay at the level of rational cognition for art innovation, which is difficult to extend to the level of practical creation. Therefore, it is necessary to guide students to think and learn constantly from multiple angles and cultivate students’ core literacy.

(RGZNJHS) (MSJX) is an important content of the new round of teaching development. That is, to use the method of artificial intelligence interactive art teaching to solve various problems in (MSJX), which will promote the teaching development of art courses. The effective combination and application of Liu Z. [17] core literacy and (RGZNJHS) art education further enrich the way of artistic creation and experience, which is conducive to cultivating students’ creative thinking and meeting students’ aesthetic needs [12]. When Zhou Z. [18] analyzed the impact of core literacy model on manual interactive art teaching, he also believed that the application of intelligent interactive (MSJX) can help improve the quality of art teaching, guide the application of knowledge in (MSJX) according to the core literacy model, and fully discover students’ potential and specialty [12]. In summary, the application of (RGZNJHS) (MSJX) has not only made a certain contribution to the reform in the field of intelligent art education but also promoted the significant improvement of students’ core literacy in the process of art teaching.

7. Summary

Feifei with the development of modern computer technology, artificial intelligence has promoted the reform of art teaching [19]. Transferring the intelligent style of artificial intelligence to intelligent art and integrating it into art classroom teaching can improve teachers’ lesson preparation efficiency and teaching efficiency. Artificial intelligence technology can generate fast and rich teaching auxiliary information for different students or different creative intentions, intuitively transmit teaching objectives in art teaching, and improve students’ learning efficiency [15]. Artificial intelligence interactive art teaching is an important content of the new round of teaching reform. It is also to solve a series of problems in art teaching with new methods, which will play a certain role in promoting the teaching reform of art courses. Based on the theoretical knowledge and core literacy cognition in the process of art teaching, this paper integrates artificial intelligence interactive art teaching. Through the construction of intelligent teaching evaluation system from the perspective of core literacy, this paper observes the application effect of the intelligent teaching evaluation system **and the sensitivity and specificity of the teaching evaluation system and the comprehensive quality scores of students. The results show that using the method of artificial intelligence interactive art teaching, it can effectively improve the sensitivity and specificity of the teaching evaluation system, improve the comprehensive quality of students in all aspects, and also

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Teaching achievement</th>
<th>Classroom effect</th>
<th>Teaching achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular course teaching</td>
<td>8.06 ± 0.55</td>
<td>7.25 ± 0.47</td>
<td>8.14 ± 0.37</td>
</tr>
<tr>
<td>Intelligent interactive art teaching</td>
<td>8.46 ± 0.49</td>
<td>7.63 ± 0.43</td>
<td>8.52 ± 0.33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.253</td>
<td>0.007</td>
</tr>
<tr>
<td>6.213</td>
<td>0.005</td>
</tr>
<tr>
<td>8.026</td>
<td>0.008</td>
</tr>
<tr>
<td>6.956</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Table 2: Comparison of comprehensive scores of students with different teaching methods.

Figure 4: Visual comparison of students’ comprehensive scores with different teaching methods.
play an important role in improving students’ art ability, improving the intelligent level of art teaching and the cultivation of students’ core literacy.

Data Availability

The data underlying the results presented in the study are available within the manuscript.

Conflicts of Interest

There are no potential conflicts of interest.

Acknowledgments

This work was supported by 2018 Inner Mongolia Autonomous Region Educational Science Research “13th five-year plan” project “Research on the ways to cultivate the core literacy of ethnic minority students—Taking the art discipline as an example” (Project No.: 2018MGH026).

References