CULTURAL VISION OF DANCE EDUCATION: RESEARCH ON TEACHING AND PERFORMING CHINESE CLASSICAL DANCE IN CROSS-CULTURAL CONTEXTS

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ABSTRACT

This paper explores the teaching and performance of classical Chinese dance in a cross-cultural context, and proposes an innovative deep learning-based model for generating classical Chinese dance. The model effectively combines dance gestures and audio features, accurately extracts key features from dance and music data, and transforms these features into internal representations through an encoder, which in turn generates dance movements that match the music. The introduction of the attention mechanism allows the model to focus on the important parts of the music during the generation process, realizing a more harmonious fusion of classical Chinese dance and music. Finally, the model of teaching ability module, performance ability module and choreography ability module is carried out to comprehensively improve students' dance skills and humanistic literacy, and to develop cross-cultural communication ability and creativity. The results show that this model excels in dance innovativeness and ability to convey emotions, receiving high scores of 8.9 and 9.3, respectively. The research results can provide dancers from different cultural backgrounds with a new perspective for learning and appreciating classical Chinese dance, and promote the communication and dissemination of world culture.

KEYWORDS

Deep learning; classical Chinese dance; audio features; decoder; attention mechanism

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1. INTRODUCTION

With the deepening of globalization, cultural exchange and integration have become the theme of the times. In this context, dance, as one of the oldest art forms of mankind, its education and performance are naturally endowed with a broader cultural vision [1]. Chinese classical dance has a long history and rich movements, and is an important part of Chinese culture. With its unique rhythms, gestures and expressions, dance shows the charm of Chinese civilization to the world [2-3]. However, due to cultural differences and language barriers, the teaching and performance of classical Chinese dance in cross-cultural contexts often face many challenges. In terms of teaching, due to the differences in students' perception and understanding of body language in different cultures, how to enable students to accurately master the movement essentials and rhythmic characteristics of classical Chinese dance has become the primary problem that teachers need to solve [4]. In terms of performance, it is also a big challenge to make audiences from different cultural backgrounds understand and appreciate the beauty of classical Chinese dance. Teachers and performers are required to have not only superior dance skills, but also profound cultural literacy and cross-cultural communication skills [5].

Combined with the research data, it is found that a large number of scholars put forward targeted strategies for the development of classical Chinese dance and foreign dance teaching and performance. For example, Ma, L perfectly united training, creation and performance in the teaching of classical Chinese dance, analyzed the importance and artistic characteristics of body rhyme teaching, explored the comprehensive scoring system from four aspects, namely, the establishment of evaluation index dimensions, the analysis and treatment of evaluation indexes, the weight ratio of evaluation index dimensions, and the conversion and comprehensive calculation of evaluation indexes, and explored the new possibilities of choreographic creation [6]. Li, J et al. on the MOOCs platform, integrating high-quality teaching resources worldwide, including dance videos, teaching courseware, expert lectures and so on. And using the MOOCs platform's wide dissemination and sharing function, the customized teaching method can deliver the quality dance teaching resources to more people and promote the inheritance and development of the dance art [7]. Yang, X in the special performance prediction model for dance students, correlation analysis and clustering analysis were performed, and neural network was used to build the prediction model, and the model was analyzed for reliability and error. The test results showed that the model constructed by the neural network predicted the level of development of dance performance and physical fitness more accurately than the regression model [8]. Anderson, M presents the work of many of Australia's major dance companies and individual performers while spanning a wide range of genres, including modern, ballet, theater, contemporary, folk and social dance styles. This dance collection is part of the Australian Performing Arts Collection and encompasses five key areas of circus, dance, opera, music and theatre [9]. Zhang, D takes dance choreographers as the object of study and applies the music feature extraction technique in machine learning to analyze the choreographers, applying the extracted music feature information to the choreography process while synchronizing the audio

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and video to achieve better choreographic effect [10]. Daly, D. K adopted an artistic practice investigation approach that included designing, rehearsing, performing and recording two performance events. A departure from traditional classical music methods, drawing on Dalcroze's artistic rhythmic techniques and utilizing ethnography and other arts-based methods to develop and collect data. An overview of Dalcroze's artistic rhythms from the performer's perspective, i.e. the researcher's, is presented and the implications of this approach for the investigation of his artistic practice are discussed [11].

The above dance teaching methods are often limited to a particular cultural context, which is difficult to meet the growing demand for cross-cultural teaching. In order to break through this limitation, this paper starts from the cultural perspective of dance education, and the deep learning-based machine dance automatic generation technology brings new possibilities for cross-cultural dance teaching. Deep learning technology's has achieved remarkable results in the fields of image recognition, speech recognition and natural language processing. Deep learning has a powerful feature extraction and learning ability, which can automatically extract useful information from a large amount of data and simulate the complex thinking process of human beings. Therefore, applying deep learning technology to the generation and teaching of Chinese classical dance is expected to provide a new solution for cross-cultural dance communication and dissemination. Through deep learning algorithms, a classical Chinese dance generation model is constructed, which is able to combine dance gestures and audio features, improve the model's ability to capture the complex relationship between dance and music by improving the traditional encoder and decoder and introducing the attention mechanism, so as to make a perfect match between dance and music, realize a better fit between classical Chinese dance movements and music, and provide a new perspective for dancers of different cultural backgrounds to learn This will provide dancers from different cultural backgrounds with a new perspective on learning and appreciating classical Chinese dance. At the same time, by combining the teaching ability module, performance ability module and choreography ability module, we can comprehensively improve students' dance skills and humanistic qualities, and cultivate cross-cultural communication ability and creativity.

2. CHINESE CLASSICAL DANCE MUSIC FEATURE EXTRACTION

2.1. AUDIO FEATURE EXTRACTION

Audio feature extraction is a key technique for analyzing and understanding the intrinsic properties of music, especially for Chinese classical dance music, whose unique rhythmic and rhythmic characteristics need to be captured by precise audio analysis. This process not only involves the technical aspects of signal processing, but also requires an in-depth understanding of the cultural connotation and artistic

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expression of the music. In terms of rhythmic feature extraction, Mel Frequency Cepstrum Coefficient (MFCC) is a commonly used method. MFCC is able to simulate the human ear's perceptual characteristics of sound and effectively represent key information such as pitch, timbre, etc. of an audio signal. By extracting MFCC features, the melody of classical Chinese dance music can be analyzed in detail to capture its unique pitch changes and timbre characteristics. Rhythm feature extraction, on the other hand, is an important part of understanding classical Chinese dance music. Classical Chinese dance music often has a distinctive sense of rhythm, which is crucial to the coordination of dance movements. Rhythm feature extraction needs to accurately capture the beat information in the music, including the strength and speed of the beat. By analyzing these rhythmic features, the coordinated relationship between music and dance movements can be better understood. In conclusion, through the extraction of rhythmic and rhythmic features, the intrinsic properties of music can be understood more deeply, providing strong support for the subsequent generation and teaching of dance movements.

2.2. ACTION FEATURE EXTRACTION

Action feature extraction is a key link to deeply understand the connotation and style of dance movement, especially in the analysis of Chinese classical dance, which is famous for its rich body language, precise action positioning and smooth action transition, so extracting its action features is of great significance for subsequent dance generation, teaching and performance. OpenPose technology can detect and track multiple key points of the human body in real time. The OpenPose technology can detect and track multiple key points of the human body in real time, and Figure 1 shows the key points of human dance movement characteristics. Figure 1 shows the key points of human dance movements, such as wrists, ankles, knees, shoulders, etc., so as to accurately capture the position information, trajectory, speed and acceleration of the key points of dance movements. These features can not only describe the basic form of dance movements, but also reflect the dancer's performance style and emotional expression. In Chinese classical dance, the soft curves of the arms and wrists, the light jumps of the feet, and the coordinated rotation of the body are important parts of the dance flavor and style, and the 18 key points of the human body are obtained by extracting the human body movement features using OpenPose.

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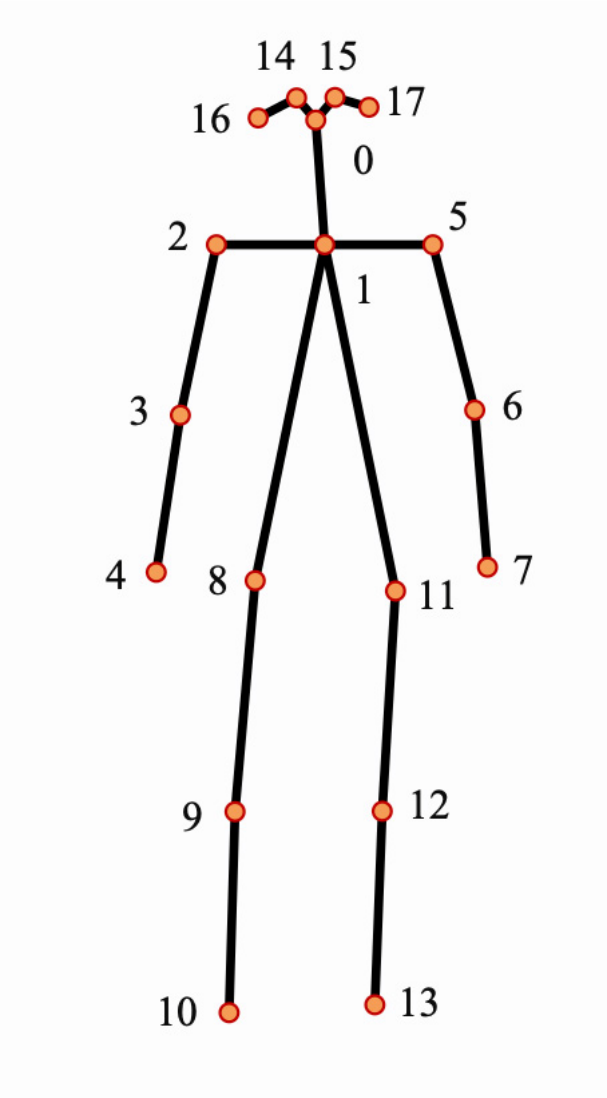

Figure 1. Key point detection of human dance motion features

By extracting audio features and action features, the following sets of feature data are obtained:

1. Audio feature $M_i = \left\langle m_i^1, m_i^2, \cdots, m_i^{32} \right\rangle$, i.e., the feature dimension of each audio is 32.

2. Beat feature $B_i = \left\langle b_i^1, b_i^2, \cdots, b_i^3 \right\rangle$, i.e., the beat dimension size of the video frame section is 3.

3. Pose feature $p_i = \left\langle p_i^1, p_i^2, \cdots, p_i^{36} \right\rangle$, i.e., the size of the pose dimension in a video frame is 36.

4. Audio data $M = \left\{ M_1, M_2, \cdots, M_n \right\}$, which means that the audio data is n frames in total, and each frame is represented as M.

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5. Dance Gesture Data $p = \{p_1, p_2, \cdots, p_n\}$, indicates that the dance gesture is n frames, and each frame is represented as P.

3. MODULE DESIGN OF GENERATIVE MODELING FOR CLASSICAL CHINESE DANCE

3.1. GENERATIVE MODEL NETWORK STRUCTURE

After feature extraction is completed, the classical Chinese dance generation model can be divided into three main parts, generator, self-encoder and discriminator. These parts work together to generate realistic dance movements. The network structure of the classical Chinese dance generation model is shown in Figure 2. The generator is the core part of the dance generation model, which is responsible for generating the corresponding dance action gestures based on the input audio features or other information. Self-encoder is a neural network model for data compression and reconstruction, which is used for audio reconstruction in the classical Chinese dance generation model. The self-encoder accepts the input audio signal and tries to recover the original audio signal through the process of encoding and decoding [12]. In the dance generation model, the role of the self-encoder is to compress and reconstruct the extracted audio features so that they can better guide the generator to output the corresponding dance movements. The discriminator is another important component used to evaluate the authenticity of the generated classical Chinese dance movements. The task of the discriminator is to determine whether the generated classical Chinese dance movements are similar to the real ones, so as to help the generator learn more realistic dance movements. By combining the three parts of generator, self-encoder and discriminator, a complete model of classical Chinese dance generation can be constructed. This model is able to generate realistic classical Chinese dance movement gestures based on input audio features or other information, which provides powerful support for classical Chinese dance creation and learning [13-14].

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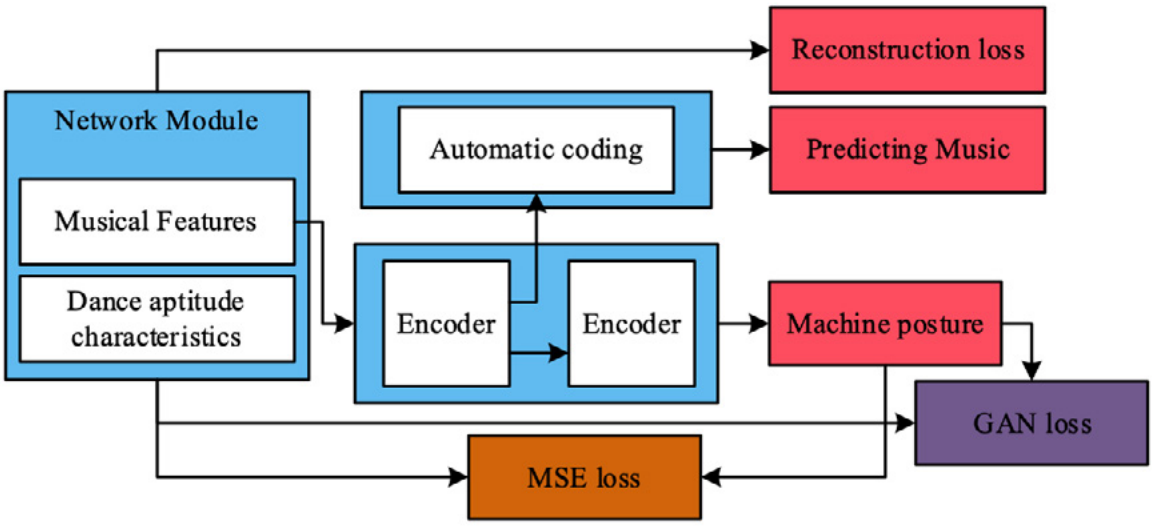

Figure 2. Network structure of Chinese classical dance generation model

3.2. CLASSICAL DANCE GENERATOR AND ENCODER DESIGN

In order to make the generation of Chinese classical dance more effective, the Seq2Seq model is chosen to design the generator, which specifically includes the encoder and decoder. However, the Seq2Seq model cannot represent all the semantic information, and the attention mechanism will be added on the basis of this model, so as to become a context vector that can summarize different semantic information at different moments. The dance generation sequence with the addition of the attention mechanism is shown in Figure 3.

In the encoder part, the attention mechanism is used to calculate the weight of each position in the input sequence so that all relevant information is taken into account when generating the context vector. This is achieved by assigning a weight to each position in the input sequence, which is calculated based on the importance of the semantic information at that position. In the decoder part, the same attention mechanism is used to compute the weight for each position in the output sequence. In this way, the model can take into account contextual information when generating each output step and emphasize or ignore certain parts as needed. By combining the Seq2Seq model and the attention mechanism, a flexible dance generation model can be created. The model can generate richer, more realistic and compliant dance movements based on input audio features and other information.

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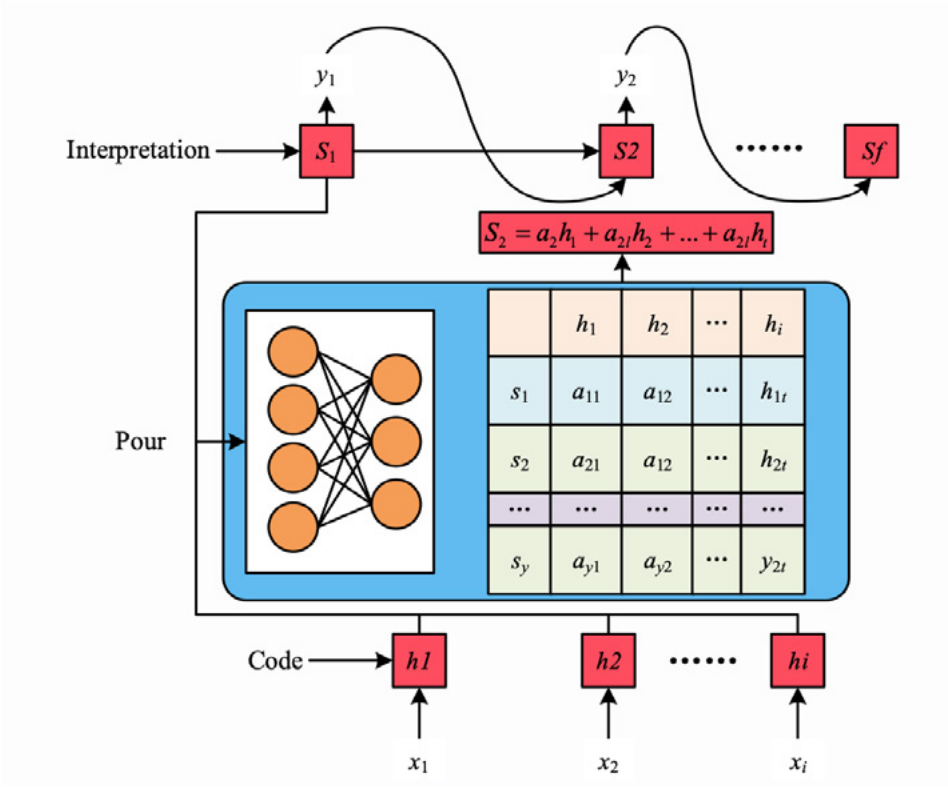

Figure 3. Attention mechanism

With the introduction of the attention mechanism, the generator network is able to focus on different semantic information at different moments to better understand and generate dance movements related to the input audio features [15]. This design approach can improve the flexibility and generation effect of the model, and better meet the needs of cross-cultural teaching and learning. The generator model of classical Chinese dance for the generator network after the introduction of the attention mechanism is shown in Figure 4.

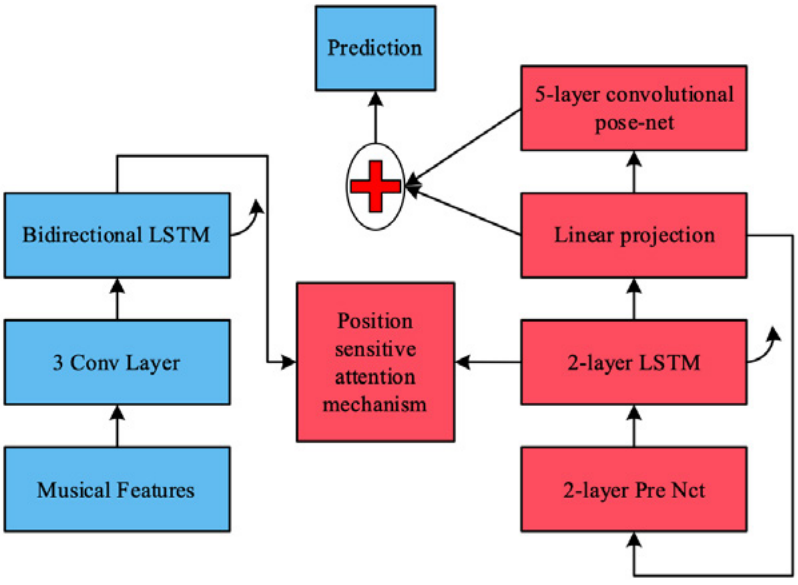

Figure 4. Schematic diagram of the Chinese classical dance generator model

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3.3. DISCRIMINATOR DESIGN FOR DANCE MOVEMENT EVALUATION

In order to make the matching of classical Chinese dance gestures and music more accurate, the matching results are evaluated by adding a discriminator. The discriminator is designed to evaluate how well the generated dance movements match the music. By adding the discriminator, the generated dance movements can be evaluated more accurately so that the generation process can be adjusted to improve the matching between the dance movements and the music. The discriminator receives the generated dance movement as input and outputs an evaluation result indicating how well the movement matches the music. This evaluation result may be a probability value, e.g., the discriminator outputs a probability value close to 1 if the generated dance movement is highly matched to the music, and a probability value close to 0 if the degree of matching is low. During the training process, the loss function of the discriminator can be designed according to practical needs. A common loss function is the binary cross-entropy loss, which is used to measure the difference between the generated movements and the real music match. By minimizing this loss function, the discriminator can gradually learn how to accurately assess the degree of match between dance movements and music. The specific way of discriminating is mainly through the loss function of the

$$L_{GAN}(G,D)=E_{(P,M)}[\log D(P,M)]+\frac{1}{2}[\log(1-D(P,M))+\log(1-D(W,M))] \quad (1)$$

Where, G denotes the generator, M denotes the music, $G(M)$ denotes the generation of the dance gesture, and $D(G,M)$ denotes the size of the probability that the dance matches the music, if the value is close to 1, it indicates that the two match more. If the value is in the range of 0, it indicates that the dance-music matching probability is small.

The classical Chinese dance gesture encoder network structure is shown in Figure 5, after generating the dance gesture, the discriminator is used to judge the match between the dance and the audio, so as to confirm whether the audio is consistent with the real gesture. If the gesture vector is denoted as $p=\{p_1,p_2,\cdots,p_n\}$, the difference between the front and back frames is denoted as $\{P_1-P_2,P_2-P_3,\cdots,P_{n-1}-P_n\}$, and the audio features are denoted as $M=\{M_1,M_2,\cdots,M_n\}$ [16]. All of them are input into the discriminator and then the discrimination is calculated by equation (1).

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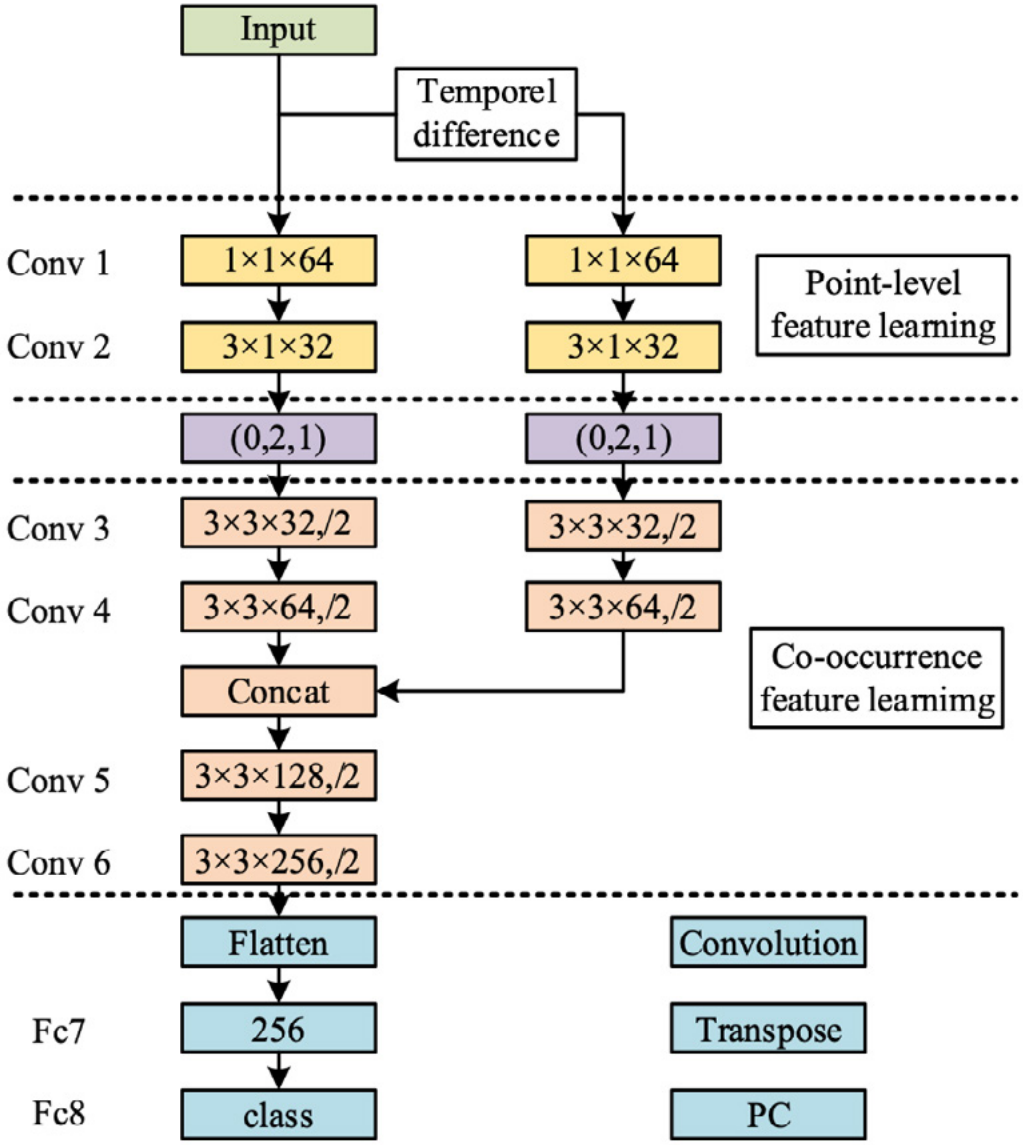

Figure 5. Network structure of Chinese classical dance pose encoder

The role of self encoder is to reconstruct the audio features. If M denotes an audio feature and B denotes a beat feature, the match between music and dance can be improved by inputting the two features into the encoder and then encoding and decoding them. The specific reconstruction is as follows:

$$f_i = Encoder(Concat(M_i, B_i)) \quad (2)$$

$$M_i^{\sim} = Decoder(f_i) \quad (3)$$

where $M_i^{\sim}$ denotes the reconstructed audio, f denotes the extracted low dimensional audio features. $Concat$ denotes the splicing process of the extracted parameters, and $Encoder$ and $Decoder$ denote the neural networks to be learned [17].

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3.4. REALISTIC CHINESE CLASSICAL DANCE DESIGN

In order to make the generated dance movements more realistic and in line with the style of Chinese classical dance, the improved Pix2Pix algorithm can be used to further process the generated dance movements. The training process of the improved Pix2Pix network for the dance movements is shown in Figure 6. The Pix2Pix algorithm is an image-to-image conversion algorithm that converts the sketches of the dance poses into real dance poses. During the training process, the Pix2Pix algorithm gradually improves its conversion ability by learning the mapping relationship from sketches to real dance poses. The algorithm continuously optimizes its parameters to minimize the difference between the real dance pose and the conversion result. By using the improved Pix2Pix algorithm, the generated dance movements can be converted into movements that are more realistic and in line with the Chinese classical dance style.

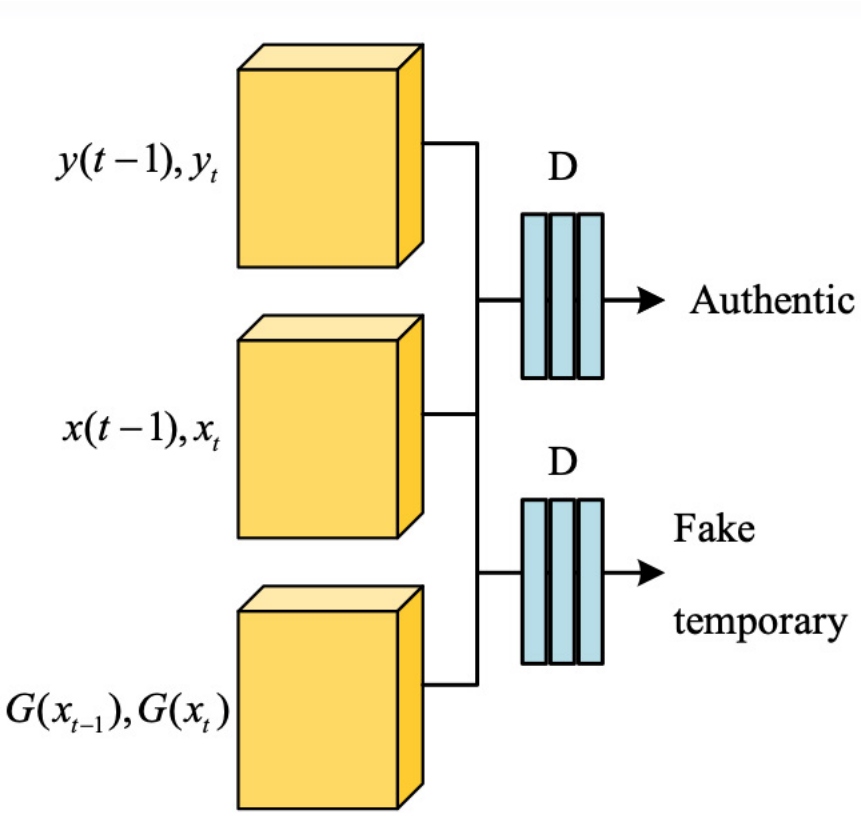

Figure 6. Dance Action Training Process of Improved Pix2Pix Network

Based on the above training process, the whole process of realizing the live-action dance can be divided into the following steps:

1. Video reading and single-frame extraction, using the OpenCV library to read the dance video file. Extract single frames in the video to form a collection of single frames as input for subsequent processing.

2. Dance movement pose extraction, use pose estimation tools such as OpenPose to analyze the extracted single frames for pose analysis. The pose

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information is converted into a heat map representation, where each pixel of the heat map represents the action pose of the corresponding part.

3. Establish the mapping relationship between the heat map and the real-life video, using the labeled training dataset, train the Pix2Pix model to establish the mapping relationship from the heat map to the real-life dance video. Let the model learn how to convert the pose information into real dance movements.

4. Dance movement coordinate conversion and video synthesis to convert the predicted dance gesture coordinates into corresponding heat maps. Using the trained Pix2Pix model, the newly generated heat maps are converted back to real dance movements. These real dance action frames are combined according to the chronological order to form a new real-life version of classical Chinese dance video, which further enriches and advances the teaching of classical Chinese dance.

4. TEACHING AND PERFORMING INTERCULTURAL CHINESE CLASSICAL DANCE

In order to further enrich and promote the teaching and dissemination of cross-cultural classical Chinese dance, the cultivation model of teaching ability module + performance ability module + choreography ability module can be implemented. This model aims to cultivate students' intercultural communication ability and dance ability through systematic teaching and practicing activities. The three levels of modules for the cultivation of classical Chinese dance ability are shown in Figure 7.

1. The basic skills training in the teaching ability module is the cornerstone of dance learning, including the training of body flexibility, strength and coordination. Body rhythm is the soul of dance, emphasizing the integration of the dancer's inner emotions and outer movements [18]. Understanding the development history of classical Chinese dance as well as teaching methods provides future dance teachers with the necessary knowledge base. By attending and observing various performances, students can cultivate creativity, stimulate vigor and passion, and better understand the charm of dance art.

2. The performance ability module includes repertoire rehearsals and international exchange activities. By rehearsing classical or modern Chinese classical dance repertoires, students can improve their performance skills and stage presence. Students are encouraged to participate in international dance festivals, cultural exchange activities, etc., to cultivate their international vision and cross-cultural communication skills [19-20].

3. The choreography ability module includes the fundamentals of dance choreography, multicultural integration, and international cooperation programs. Learning the basic principles and techniques of choreography

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enables students to create dance works with personal characteristics [21]. Students are guided to explore the possibility of combining classical Chinese dance with dance elements from other countries and regions to develop their cross-cultural choreographic ability. Encourage students to participate in international dance creation projects and collaborate with international dance artists to create dance works with international perspectives [22].

This cultivation mode of curriculum module + practical ability adds the element of cross-cultural exchange to the original foundation, provides students with a wider range of dance education opportunities, and cultivates their ability to perform, teach and create dance in the context of globalization. Through participation in international exchange activities and cross-cultural cooperation programs, students can better understand and disseminate Chinese classical dance culture, and at the same time learn from and absorb the outstanding dance elements of other countries and regions, thus laying a solid foundation for their future cross-cultural teaching and performing careers.

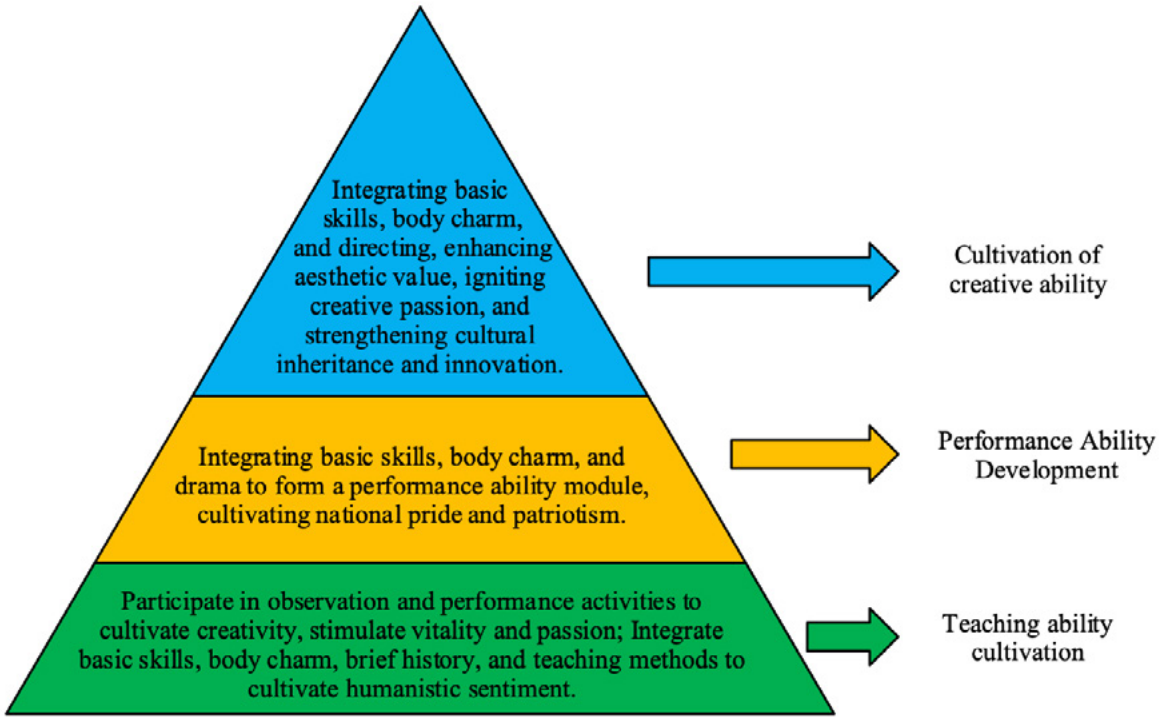

Figure 7. Three Levels of Cultivating the Ability of Chinese Classical Dance

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5. DISCUSSION OF EMPIRICAL EVIDENCE ON THE RESULTS OF TEACHING CLASSICAL CHINESE DANCE

5.1. ANALYSIS OF CHOREOGRAPHIC AUTHENTICITY AND COHERENCE

In order to objectively assess the authenticity and coherence performance of the system proposed in this paper on classical Chinese dance choreography, a user manual scoring method was adopted for the empirical study. Thirty-five postgraduate students were invited as experimental participants, 18 of whom had a background in dance, musical instruments or voice. This combination of participants ensured the professionalism of the scoring and also took into account the aesthetic viewpoints of the general audience. During the experiment, emphasis was placed on ensuring that the participants had sufficient musicality and aesthetic knowledge of music and dance to ensure the reliability and validity of their ratings. Participants were asked to watch two videos of classical Chinese dances, one was a classical Chinese dance choreographed through traditional teaching methods, and the other was a classical Chinese dance generated through the methodology of this paper. After viewing, participants were asked to rate the authenticity and coherence of the two dances on a five-point scale based on their subjective judgment. The scale was 1-5, where 1 indicated very poor and 5 indicated very good. This is designed to allow participants to express their evaluation clearly. The result scores for the authenticity and coherence of the choreography of classical Chinese dance are shown in Figure 8, and the authenticity scores of the dance movements generated by this paper's method are all significantly higher than the results of the control group.

Figure 8(a) shows the authenticity score, the final score of the authenticity of the choreography results of the control group is 1.61, and the proportion of users who scored 1 and 2 is more than 40%, i.e., most of the users think that the results of the choreography are very inauthentic and inauthentic, and the users who think that the results are barely authentic and authentic only account for 6% each. The final score for the authenticity of the results of this paper's method is 4.09, with more than 60% of users scoring 4 and considering the results to be authentic, and 24% of users considering the results to be very authentic. Figure 8(b) shows the coherence score, the coherence of the results of the control group choreography final score of 1.76, the highest score is only 3, the users who scored 1 and 2 almost accounted for 50% each, i.e., the users who think the results are very incoherent and incoherent almost accounted for half each. The final score for the coherence of the results of this paper's method was 4.1, with a minimum score of 3. More than 70% of users scored 4 and considered the results coherent, and almost 20% scored 5 and considered the results very coherent.

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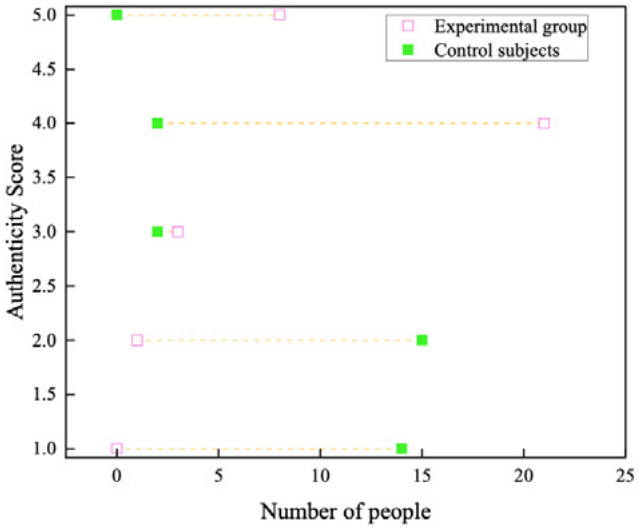
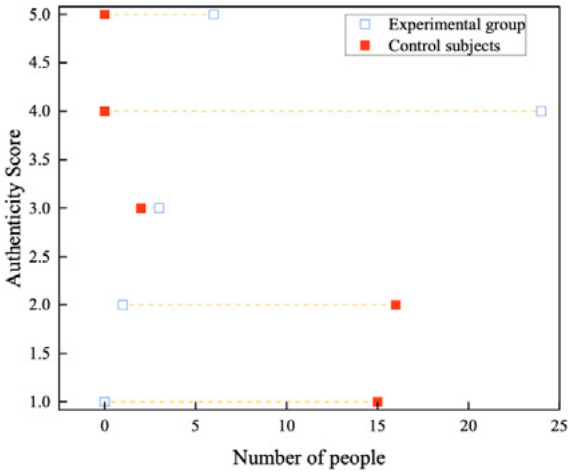


(a) Authenticity



(b) Coherence

Figure 8. The choreography results of Chinese classical dance

5.2. MULTIDIMENSIONAL ASSESSMENT OF DANCE PERFORMANCE

In order to comprehensively assess the effectiveness of the dance auto-generation method in teaching classical Chinese dance, an empirical study was designed for dance performance. Two groups of experimental subjects with different backgrounds5 were selected for this study, aiming to compare the differences between traditional teaching methods and supplementary teaching methods incorporating dance auto-generation in developing students' dance performance abilities. Two groups of experimental subjects were selected, one was students with a basic knowledge of classical Chinese dance, experimental group A, and the other was students without a basic knowledge of dance but with an interest in Chinese culture, experimental group B. A four-week cross-cultural classical Chinese dance teaching program was conducted for the two groups of students, in which experimental group A adopted the

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traditional teaching method, and experimental group B used the dance auto-generation system as the supplemental teaching method.

At the end of the teaching period, students in both groups were assessed on their performances, and the results of the multidimensional classical Chinese dance performance assessment are shown in Figure 9. In all three dance actions, the scores of experimental group B were higher than those of experimental group A. Experimental group A was good in the accuracy of dance actions, and scored 8.5 points in dance action 1. It scored relatively low on rhythm, expressiveness, creativity, and ability to convey emotion. Experimental group B scored higher on all assessment dimensions than experimental group A. It performed well in dance action 3 with a score of 9.6 for movement accuracy. There were also significant improvements in rhythm, expressiveness, innovativeness, and the ability to convey emotion, especially in innovativeness and the ability to convey emotion, which received high scores of 8.9 and 9.3, respectively. From the data, experimental group B combined with the dance automatic generation system teaching showed a trend of superiority over the traditional teaching method of experimental group A in all aspects of dance performance. This suggests that the use of the Dance Automated Generation System in teaching may help to improve students' dance performance abilities, especially in terms of creativity and ability to convey emotion. These enhancements may be attributed to the features of instant feedback, personalized instruction, and creative inspiration provided by the system.

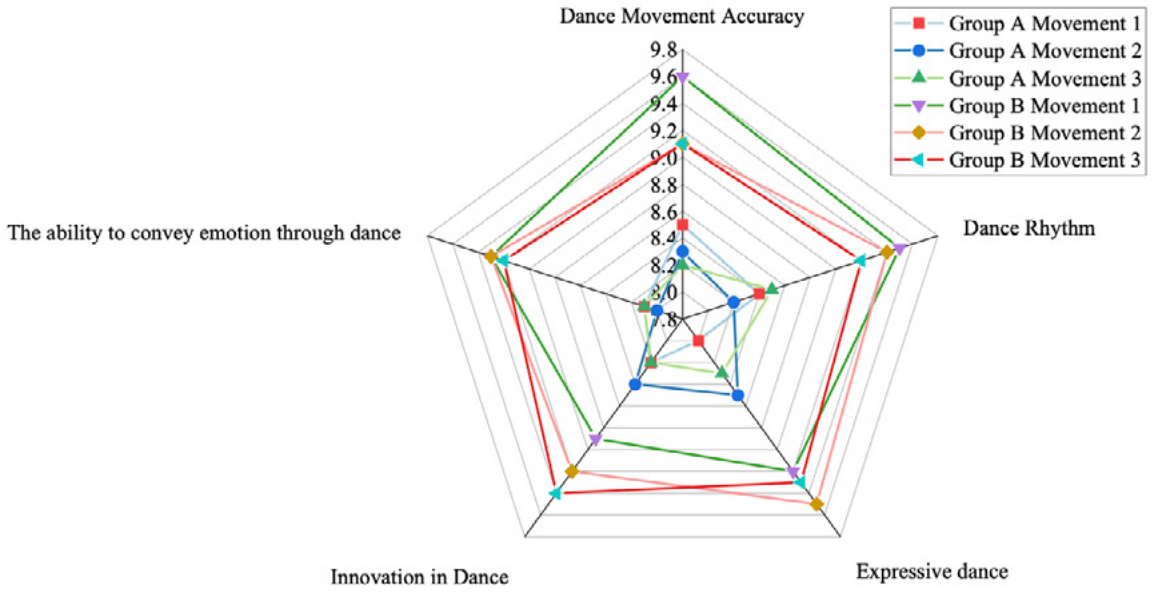

Figure 9. Evaluation Results of Multidimensional Chinese Classical Dance Performance

6. CONCLUSION

In order to promote the inheritance and promotion of Chinese classical dance, this paper successfully constructs a deep learning-based Chinese classical dance

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generation model, which realizes a better fit between dance movements and music by combining dance gestures and audio features. The results of the traditional teaching method and the teaching method combined with the automatic dance generation system on the assessment of students' performances were compared. The final score of the authenticity of the choreography results of the control group was 1.61, and most users considered the choreography results to be very inauthentic and unrealistic. The final score for the veracity of this paper's method was 4.09, with more than 60% of users considering the results to be veritable and 24% considering the results to be very veritable. The final score for the coherence of the choreography results for the control group was 1.76, and most of the users considered the results to be very disjointed and incoherent. The final score for the coherence of this paper's method was 4.1, with more than 70% of users considering the results to be coherent and nearly 20% considering the results to be very coherent. Experimental Group B, taught in conjunction with the Dance Automation Generation System, showed a tendency to outperform the traditional teaching methods of Experimental Group A in all aspects of dance performance. The cultural vision of dance education in the study of teaching and performing classical Chinese dance in a cross-cultural context has both deep cultural connotations and is able to promote cultural inheritance and innovation, as well as the coexistence and development of global cultural diversity.

REFERENCES

(1) Fløtes, M. (2023). Diffracting through an ethical itch: Becoming a response-able dance education researcher. *Journal for Research in Arts and Sports Education, 7*(2).

(2) Mabingo, A. (2022). Decolonizing assessment in dance education: Ubuntu as an evaluative framework in Indigenous African dance education practices. *Journal of Dance Education, 22*(1), 1-12.

(3) Yeum, H. J., & You, J. Z. (2022). A study of new direction of Korean dance education according to digital conversion policy. *Journal of Convergence Consilience*.

(4) Nam, J. (2020). Formation and diversification of contemporary Chinese classic dance. *The Eastern Classic Studies, 42*, 241-270.

(5) Kasmahidayat, Y., Hanafiah, M., & Hasanuddin. (2022). Gending Sriwijaya dance performance as an innovation media to develop the cross-culture based local economy. *Advances in Social Science, Education and Humanities Research*.

(6) Ma, L. (2022). Operation design of comprehensive scoring system for classical dance training based on information technology. *2022 International Conference on Information System, Computing and Educational Technology (ICISCET)*, 4-6.

(7) Li, J., Kou, H., Wang, J., & Ren, W. (2023). Enhancing online learning for dance majors: A customized teaching approach using massive open online courses. *Education and Information Technologies*, 1-29.

(8) Yang, X. (2022). Analysis of the construction of dance teaching system based on digital media technology. *Journal of Interconnection Networks, 22*(Supp05), 2147021.

(9) Anderson, M. (2020). Dance overview of the Australian Performing Arts Collection. *Dance Research, 38*(2), 149-167.

https://doi.org/10.17993/3cemp.2024.130153.81-100

(10) Zhang, D. (2022). Research and implementation of choreographer technique based on music feature extraction. *Journal of Interconnection Networks, 22*(Supp02), 2143036.

(11) Daly, D. K. (2022). Creativity, autonomy and Dalcroze Eurhythmics: An arts practice exploration. *International Journal of Music Education, 40*(1), 105-117.

(12) Bi, J., Wang, Z., Yuan, H., Zhang, J., & Zhou, M. (2023). Self-adaptive teaching-learning-based optimizer with improved RBF and sparse autoencoder for high-dimensional problems. *Information Sciences, 630*, 463-481.

(13) Hilmkil, A., Thomé, C., & Arpteg, A. (2020). Perceiving music quality with GANs. *arXiv preprint arXiv:2006.06287*.

(14) Ma, X., Wang, Y., Kan, M. Y., & Lee, W. S. (2021, October). AI-lyricist: Generating music and vocabulary constrained lyrics. In *Proceedings of the 29th ACM International Conference on Multimedia* (pp. 1002-1011).

(15) Wang, W. Y., Du, W. W., & Peng, W. C. (2022). RecFormer: Personalized temporal-aware transformer for fair music recommendation. In *CEUR Workshop Proceedings* (Vol. 3318). CEUR-WS.

(16) Qin, Y., Huang, T., & Tang, G. (2022). A hierarchical children's dance movement pose estimation method based on sequence multiscale feature fusion representation. *Advances in Multimedia, 2022*.

(17) Wang, S., Li, J., Cao, T., Wang, H., Tu, P., & Li, Y. (2020). Dance emotion recognition based on Laban motion analysis using convolutional neural network and long short-term memory. *IEEE Access, 8*, 124928-124938.

(18) Amie, K. (2022). Hidden curriculums of the black dancing body: Teaching within and among racialized perceptions. *AERA 2022*.

(19) Park, S. (2023). A study on importance and satisfaction of attending a dance performance using importance-performance analysis (IPA). *Journal of the Korea Entertainment Industry Association*.

(20) Ren, H. (2023). Modern strategies for dance teacher performance management at dance colleges on the example of Central China. *Research in Dance Education*, 1-15.

(21) Bilitza, M. S. (2021). Being the facilitator: A brief research report on the motivation of the choreographer and dance maker to work with heterogeneous groups in a community dance setting. *Frontiers in Psychology, 12*, 601033.

(22) Hodgson, A. (2020). Beyond the Opera House: Some Victorian Ballet Burlesques. *Dance Research, 38*(1), 7-24.

https://doi.org/10.17993/3cemp.2024.130153.81-100