

A Study on the Memory Persistence of Dance Drama Music after Viewing the Performance

Linjun Huang

*Music College, Shanghai Normal University, Shanghai, China
linjun03niu@gmail.com*

Abstract. Dance drama music is the core element of dance drama art. The persistence of the audience's memory of the performance directly affects the vitality and dissemination power of the work. This study aims to explore the core factors influencing the persistence of the audience's memory of dance drama music. Using an interpretive sequential mixed-method design, through questionnaire surveys and semi-structured interviews, quantitative and qualitative analyses were conducted. The results showed that the audience had a positive overall impression of the dance drama music but had limited ability for precise recall; the memory level showed a trend of stabilizing first and then declining as the viewing time increased, and significantly declined after one year; qualitative interviews further revealed the deep psychological mechanisms such as the frequency of viewing, the emotional color of the music, and vocal markers. This study provides empirical evidence and psychological references for optimizing the creation of dance drama music, adjusting dissemination strategies, and enhancing audience experience.

Keywords: Dance drama music, Persistence of memory, Dance drama, Music psychology

1. Introduction

Dance drama music refers to the music that is created, arranged or selected for a dance drama as a comprehensive stage art form, to complement the dance movements, drive the plot development, and enhance the emotional atmosphere. Even as a supplementary form of a dance work, the artistic value of dance drama music is widely recognized and highly praised by the entire society [1]. Whether dance drama music can leave a lasting impression in the audience's minds is directly related to the vitality and dissemination power of the artistic work. With the upgrading of cultural consumption and the rapid development of the dance drama industry, the position of dance drama art in the Chinese literary and artistic market has become increasingly prominent. The retention of the audience's memory of the performance after viewing a dance drama has become an important dimension for measuring the artistic.

The research on the persistence of dance drama music memory involves the interdisciplinary field of music psychology and cognitive psychology. In the field of memory persistence research, Zou Dan et al. proposed that the adrenaline and corticosterone released during emotional stimulation can regulate the consolidation of long-term memory. In the research on dance drama music, Song Ning suggested that dance drama music engages in dialogue with the text of the dance drama, such as its

plot and character images, through intertextual expression. Dai Shanshan pointed out that in the creation of dance drama music, the flexible combination of internal focus, external focus, and zero focus techniques is employed. In the research on music and memory, Liu Yi's study indicated that emotional valence has an impact on both implicit and explicit memory of music. However, current academic research on dance drama music mostly focuses on its collaborative relationship with dance movements and cultural expression functions, while there is a lack of systematic and in-depth exploration of the memory retention status and persistence mechanism of dance drama music after audience viewing, leaving considerable room for further exploration.

Currently, the dance drama market is continuously expanding. The current research mainly focuses on the dance drama music itself and the viewing experience. At present, there are still many gaps in the research on the audience's memory retention of the dance drama music after viewing. Therefore, this research project aims to conduct in-depth investigation and analysis of the audience's memory of the dance drama music after viewing through questionnaires and interviews. The goal is to better understand the association mechanism between the dance drama music and the audience's memory, provide empirical evidence and psychological references for the creation and arrangement of dance dramas, and explore effective paths to enhance the audience's artistic experience and cultural vitality.

2. Research design and implementation

2.1. Research design

This paper adopts a mixed-method design, with quantitative methods being the main approach and qualitative methods serving as a supplement. Firstly, quantitative data on the audience's memory of the dance drama music is collected through questionnaires. Based on the analysis of the questionnaires, typical respondents are selected for in-depth interviews. The interview texts and open-ended questionnaire responses are systematically analyzed for themes. The method of continuous comparison and induction is employed, and the differences in memory among audiences at different time periods and under different backgrounds are compared and analyzed to explain the core factors that influence the persistence of the audience's memory of the dance drama music.

2.2. Research subjects

In the quantitative stage, questionnaires were distributed to the audience who had viewed the entire full-length dance drama online. A total of 219 valid questionnaires were collected. In the qualitative stage, from the respondents who expressed their willingness to participate in the questionnaire, considering factors such as the duration of the performance, the type of the play, and the level of memory, 10 typical cases were selected for in-depth interviews until the themes were saturated.

2.3. Research design and implementation of questionnaire method

2.3.1. Questionnaire structure and content

This survey questionnaire is a self-developed "Survey on the Persistence of Dance Opera Music Memory", which was revised after preliminary research to form the final version. The questionnaire consists of four parts, and the specific contents are as follows:

Part 1: Basic Information and Viewing Context;

Part 2: Evaluation of Dance Opera Music Perception and Memory Retrieval (Degree of Imagination, Number of Recalled Segments, Probability of Recognition, Type of Recalled Content, Including Open-ended Questions);

Part 3: Evaluation of Core Factors Affecting Memory Persistence, including three sub-dimensions: musical intrinsic characteristics, intensity of emotional connection, and external associated factors;

Part 4: Open-ended Questions and Interview Intentions.

2.3.2. Questionnaire distribution and collection

This questionnaire was distributed through a combination of online and offline methods. The questionnaire distribution period was March 2026. A total of 250 questionnaires were distributed, and 240 were returned. Among them, 219 were valid, with a valid return rate of 87%.

A reliability and validity analysis was conducted on the scale questions in the third part. In the reliability analysis, the Cronbach's α coefficient was 0.82, indicating that the questionnaire has good internal consistency. The validity analysis employed exploratory factor analysis, with a KMO value of 0.842, which is suitable for factor analysis. This indicates that the questionnaire has good reliability and validity, and the survey data can be used for further analyse.

2.4. Interview method design and implementation

This interview adopted a semi-structured interview outline. Based on the preliminary issues identified through the questionnaire survey, core interview questions were designed, while leaving room for flexible questioning. The questions were adjusted according to the progress of the interview. The interview outline mainly included the following core questions:

(1) Time dimension: The questions were asked in the sequence of "immediate memory - memory after a week - long-term memory - triggering arousal" to restore the changes of memory over time.

(2) Memory Context: Investigate the specific scenarios of involuntary recollection and the triggering by media, as well as whether there is an association with dance visuals during the triggering process.

(3) Comparative Perspective: Compare "the plot makes people remember the music" with "the music makes people remember the plot"; the memory differences between dance drama music and film scores/performing music works; the influence of having lyrics versus having no lyrics.

(4) Specificity of the Play: Design specific questions for plays such as "Only Green Landscape" and "The Everlasting Electromagnetic Wave", to capture unique memory anchors.

This interview was conducted online, lasting for 20 to 30 minutes each. All respondents were anonymous and the entire process was recorded and transcribed.

3. Analysis of questionnaire survey data

3.1. Descriptive statistical analysis

A total of 219 valid questionnaires were collected in this survey. 86.3% were female and 13.7% were male. The majority were aged between 18 and 35, accounting for 70.4%, followed by those aged 36 to 45 (16.4%), 46 to 55 (9.1%), and over 55 (4.1%). 44.3% had no music learning experience, 23.7% had less than one year of experience, 11.9% had one to three years of experience, and 20.1% had more than three years of experience. Regarding the frequency of watching plays in

the past three years: 20.1% watched once or less, 39.7% watched 2 to 5 times, 18.3% watched 6 to 10 times, and 21.9% watched 10 times or more.

From the perspective of the current status of the core variables, the overall evaluation of the audience towards the music of the dance drama is relatively high. The average values of the musical characteristics (melody, rhythm, coherence, etc.) are all above 4.3 (out of 5 points), with "the coherence of music and dance movements" having the highest score ($M = 4.708$). However, the scores for external associated behaviors (such as actively searching for the original sound, contacting the preview, etc.) before and after watching the play are relatively low (average 2.9 - 3.1), indicating that the audience's active contact frequency outside of watching the play is relatively low.

3.2. Difference analysis

Taking "the time elapsed since the last viewing of the drama" as the independent variable (Group 1: within 1 month, $n = 12$; Group 2: 1-6 months, $n = 75$; Group 3: 6 months - 1 year, $n = 53$; Group 4: 1-2 years, $n = 55$; Group 5: 2-3 years, $n = 24$), a one-way ANOVA was conducted on the memory-related variables. The results showed that there were extremely significant differences in the three memory variables among viewers with different viewing intervals ($p < 0.01$). The effect sizes (partial η^2) were 0.082, 0.105, and 0.128 respectively.

3.3. Correlation analysis

To initially identify the potential factors influencing the persistence of memory for dance drama music, a Pearson correlation analysis was conducted between the three memory indicators (questions 9, 10, and 11) and the musical characteristics (questions 14-18), the strength of emotional connection (questions 19-21), and external influencing factors (questions 22-27).

There was a significant positive correlation among the three memory indicators (r ranging from 0.555 to 0.669, $p < 0.01$), indicating that they jointly reflect the latent construct of "the persistence of dance music memory", and can be combined into a comprehensive score for further analysis.

All the musical characteristics were positively correlated with the three memory indicators ($p < 0.01$). Among them, the beauty of melody (Question 14) had the strongest correlation with memory (r ranging from 0.397 to 0.475), followed by the uniqueness of instrumentation (Question 16) (r ranging from 0.304 to 0.379); the rhythmic appeal (Question 15) had a relatively weak correlation with memory (r ranging from 0.250 to 0.314). At the same time, the various emotional connection indicators also had a positive correlation with memory ($p < 0.01$). The degree of fondness (Question 21) had the strongest correlation with memory (r ranging from 0.454 to 0.509), while the clarity of emotion (Question 20) and the enhancement of emotion understanding (Question 19) had correlation coefficients within the medium.

Among the external influencing factors, the post-viewing behavior is positively correlated with memory: active search for the original sound (Question 24, with r ranging from 0.353 to 0.444), passive exposure to music (Question 25, with r ranging from 0.303 to 0.432), and discussion of music with others (Question 27, with r ranging from 0.303 to 0.432). The pre-viewing behaviors (Questions 22 and 23) have a weaker correlation with memory, and some do not reach the significant level. The correlation coefficient between the post-viewing active search (Question 24) and the recognition possibility (Question 11) is the highest ($r = 0.444$), indicating that the post-viewing behavior of actively revisiting the music is particularly crucial for maintaining precise memory.

The correlation coefficients among all the influencing factors are all less than 0.7, indicating that there is no serious multicollinearity problem, and all the variables can be included in the subsequent regression analysis.

3.4. Regression analysis

Taking the comprehensive memory indicators (the average values of questions 9, 10, and 11) as the dependent variable, and demographic variables, musical ontology features, emotional connection, and external influencing factors as independent variables, a multiple linear regression analysis was conducted. Model summary: $R^2 = 0.516$, adjusted $R^2 = 0.483$, $F(14, 204) = 15.530$.

When controlling for other variables, a total of 7 variables had significant independent predictive effects on memory persistence ($p < 0.05$). Listed in descending order by standardized regression coefficient (Beta) are:

- (1) Melodic beauty (Question 14) is the strongest positive predictor ($\beta = 0.311$, $p < 0.001$).
- (2) Degree of fondness (Question 21) is the second strongest positive predictor ($\beta = 0.298$, $p < 0.001$).
- (3) Active search after watching (Question 24) has a significant positive impact on memory ($\beta = 0.182$, $p < 0.01$).
- (4) Frequency of discussion after watching (Question 27) also significantly positively predicts memory ($\beta = 0.166$, $p < 0.05$).
- (5) Pre-view understanding (Question 23) has a significant positive impact on memory ($\beta = 0.145$, $p < 0.05$).

This shows that factors such as the beauty of the melody, the degree of music appreciation, the act of actively searching for the original sound after watching, the discussion of music with others after watching, and the proactive understanding of the plot before watching the play, are all positive promoting factors, and they significantly enhance the persistence of the memory of the dance music. However, a high degree of matching between the music and the dance movements, and excessive exposure to trailers/promotional clips before watching the play, have a negative impact on memory.

4. Analysis of interview data

A total of 10 interviewees participated in this study. The content was categorized into three groups: the "Green Isle" group (4 people), the "Never Fading Radio Waves" group (4 people), and other dance groups (2 people). A systematic analysis was conducted on the memory characteristics, influencing factors, and internal patterns of the dance opera music, providing empirical evidence for understanding the dissemination of dance opera music and the audience's perception.

4.1. "A tapestry of a legendary land" group

In terms of the motivation for watching the play, most people were initially attracted by the clips on platforms like the Spring Festival Gala or Bilibili, and bought tickets with a "try new things" mentality. However, after watching, they gradually developed the habit of repeatedly watching it. The musical memories are mostly driven by emotions and centered on overall perception.

Firstly, when viewers watch a play for the first time, they mainly experience the music in an overall atmosphere-based manner, lacking clear segmental memory. After multiple re-watches, their memory shifts from fragmented to holistic. At the same time, the memory points and emotional experiences of the respondents regarding the music also undergo changes. Initially, many people

believed that the music in the group dance segment of "Qinglv" was the most catchy and memorable. Later, when watching the entire play, in the "Changsi" part, the melody was relatively light and the appearance of the human voices broke the pure instrumental environment of the dance drama.

Secondly, the symbiotic relationship between dance and music is emphasized. Music is responsible for setting the tone and creating the atmosphere. Dance and the plot bring the music to life. That is, the composer, from the perspective of a certain character in the play, observes and portrays the inner world of the dance drama story. Using musical language, they express the characters' inner thoughts, the emotional exchanges between characters, and conflicts [2]. This completes the visual transformation of auditory information, and together, they form the core of memory. One interviewee pointed out from a professional perspective, "In the 'San Xi Meng' section, the flowing movements are coordinated with the string music, creating an image of 'the picture being filled', and this high degree of alignment between music and dance is the core reason for its deep impression."

4.2. "The Eternal Wave" group

In terms of the motivation for watching the play, most of the respondents were mainly influenced by the reputation of the play or the "out-of-the-ordinary" segments, and the interviewees included both ordinary audiences and professional audiences. Overall, the "The Eternal Wave" group relied more on the plot development and specific highlight segments to remember the music.

Regarding the most memorable parts and the immediate memory upon leaving the theater, several respondents mentioned the music of the Qipao dance. The tense and exciting music rhythm was particularly special, and the connection between the music and the scene was done extremely well. However, regarding the fading and triggering of memory, the respondents from the "The Eternal Wave" group generally presented a "triggered memory" characteristic. That is, the music would not pop up for no reason. One respondent who watched it less frequently said that after two weeks of watching, it was very difficult for her to hum the specific melody unless she saw related promotional videos or similar-themed movies, such as the films "Eternal Regret" and "Forbidden Love".

Music and its embodiment through dance might seem to be the arts that appeal most directly to the emotions [3]. At the same time, the organizational patterns and narrative logic of the music in the dance drama are specifically related to the narrative structure of the dance drama [4]. Therefore, regarding the relationship between the plot and the music, the respondents gave different opinions. The majority of ordinary viewers mainly rely on the plot to form musical memories, while professional viewers place more emphasis on the leading role of music in narration and dance. Elements such as telegraphic sound effects, changes in tempo, and string arrangement enhance the memory effect. Melodies with a sad and sacrificial tone evoke emotional resonance more easily and are more likely to be remembered for a long time. There are also separate discussions: in narrative-rich sections, the plot leads the music, while in abstract atmosphere sections, the music leads the plot.

4.3. Other dance groups

The respondents selected from the other groups had lower scores. Two respondents had low frequency of watching the plays, had vague memories of the music, and rarely actively engaged with the music of the dance dramas. The two interviews mainly revealed the reasons why the music was not remembered. The respondents' viewing mainly focused on the dance and the plot, with music

merely regarded as a background element to enhance the atmosphere. The memory was mainly based on scenes, only being able to remember the drumbeats at the climax of the dance dramas and sporadic instruments. The majority of the memory was about the atmosphere. It is worth noting that the music did not leave no trace at all; it was just lacking the ability to actively retrieve it. The reasons why the respondents couldn't remember were mostly attributed to their insufficient musical literacy or insufficient viewing frequency.

Secondly, the emotional tone of the music determines the way it is evoked. Music's ability to evoke vivid, long-lasting, emotionally charged memories may reflect its unique access to both emotional and autobiographical memory systems [5]. Music with a sad tone is more likely to emerge involuntarily when one is in a low mood; while cheerful or passionate music is more likely to be evoked when one is actively thinking or in a happy situation. Human voices play a significant role in creating memory markers in dance music. Multiple respondents mentioned that in a dance performance without dialogue and purely instrumental music, the sudden singing would be strengthened in memory because it "breaks the silence".

5. Main findings of the study on memory persistence of dance drama music after viewing the performance

5.1. Main research findings

The memory of dance drama music after viewing shows a general characteristic of "good overall impression, limited precise recall, and insufficient active engagement". The overall memory level shows a trend of stabilizing initially and then declining as the viewing time increases. The memory retention is relatively good within one year after viewing, but gradually declines after one year. A questionnaire survey indicates that the average level of audience's impression of the dance drama music is at a moderately high level, but the number of specific musical segments that can be recalled and the possibility of recognition are relatively low. At the same time, the frequency of actively searching for the original sound music and discussing music with others before and after viewing is relatively low, presenting a typical characteristic of "passive memory being stronger than active re-engagement". The interview data further confirm this finding: The majority of low-frequency viewers can recognize the music when it is played in its original form but cannot hum it actively, and it is basically forgotten after one week. From the perspective of the differences in the drama, different dramas exhibit different characteristics of memory persistence, and when not paying attention to the music, the memory is basically blurred.

The core factors that affect the persistence of dance drama music memory include five dimensions: music ontological characteristics, emotional connection, post-watching behavior, drama frequency and time interval. The regression model shows that the beauty of the melody and the degree of music appreciation are the most significant positive predictors. Actively searching for the original sound after viewing, discussing the music after viewing, and actively understanding the plot before viewing also have a positive effect. In the interviews, qualitative explanations were obtained: The green group formed a lasting memory due to multiple viewings and active review. The emotional color of the music directly affects the arousal of memory, and the human voice has a marking effect, breaking the pure instrumental environment to enhance memory. However, it is worth noting that "remembering" does not equal "liking". Contradictory styles or strong rhythm contrasts can also become memory anchors.

Based on the research findings, practical suggestions can be proposed from three aspects: creation, dissemination, and audience experience. Firstly, at the creation level, creators should

properly handle the relationship between music and dance, ensuring a just-right balance without being overly similar. At the same time, they should design rhythm structures with contrast and special emotional anchors to enhance auditory recognition and emotional impact. Secondly, at the dissemination level, creators should actively encourage audiences to engage in active contact behaviors after watching the play, such as releasing high-quality original soundtracks and other derivative content, to increase the repetitiveness and persistence of memory; at the same time, they should pay attention to controlling the exposure rhythm of trailers to avoid excessive exposure in advance, which may lead to a sense of disappointment. Finally, at the audience experience level, complementary services such as post-performance talks can be provided, making audiences willing to actively watch again and review, helping them establish a memory consolidation path from "overall impression" to "precise reproduction". impression" to "precise reproduction".

5.2. Research limitations and future directions

This study revealed the core influencing factors of the persistence of dance drama music memory through questionnaires and interviews, but there are still some limitations: The sample was mainly composed of young female audiences (86.3%), and the generalizability of the conclusions in the male and middle-aged and elderly groups needs to be verified; The retrospective design was adopted, and the memory measurement relied on self-reporting, which may lead to recall bias; In addition, the innate differences in individual music memory ability could not be controlled.

At the same time, in the future, the research can further adopt a longitudinal tracking design to directly track the changes in memory of the same group of audiences, combined with behavioral experiments, such as auditory recognition tasks, to objectively measure the accuracy of memory, and further reveal the brain basis of the interaction between emotion and memory.

References

- [1] Li, X. (2022). Review of contemporary Chinese dance opera music composition. *Journal of Beijing Dance Academy*(2), 100–106.
- [2] Dai, S. (2025). Research on the "focus" technique in dance opera music. *Journal of Beijing Dance Academy*(1), 104–113.
- [3] Carter, T. (2020). Music and dance. In C. Walker, K. Brackley, & D. Lonsdale (Eds.), *A cultural history of the emotions in the Baroque and Enlightenment age* (p. 53). Bloomsbury Publishing.
- [4] Song, N. (2023). The narrative orientation, character attachment, and thought expression of music - On the intertextual expression of dance opera music. *Journal of Beijing Dance Academy*(5), 135–140.
- [5] Burunat, I., Mavrolampados, A., Duman, D., Koehler, F., Saarikallio, S. H., Luck, G., & Toiviainen, P. (2025). Memory bumps across the lifespan in personally meaningful music. *Memory*, 33(10), 1196–1216.