

Traveling Through the Music Time Machine: Digital Memory Practice in Annual Listening Reports on Music-Based Social Media Platforms

Yuxin Wu¹

¹ School of Digital Media and Design Arts, Beijing University of Posts and Telecommunications, China

Correspondence: Yuxin Wu, School of Digital Media and Design Arts, Beijing University of Posts and Telecommunications, Beijing, China.

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Abstract

This study focuses on the "annual listening reports" generated by music-based social media platforms as a form of digital memory practice. It investigates how such reports influence the construction of individual memory and the formation of collective memory. Using participatory observation and semi-structured interviews, the research analyzes listening reports from QQ Music and NetEase Cloud Music over the past three years and includes interviews with eight young users. The findings reveal that both platforms employ multimodal presentations and emotional narratives to evoke user resonance, though issues such as narrative homogenization and slow innovation in format persist. Users actively engage in the construction of digital memory by utilizing everyday listening records to bridge memory gaps and by negotiating with platform algorithms through "pre-arranged playlists." These reports also function as social media artifacts that enable self-presentation and emotional resonance in the foreground, while facilitating strong social ties in the background. In doing so, individual memories are embedded into broader networks of collective memory. This study provides insights into user behavior on music platforms and social media. It contributes a novel theoretical perspective on the interaction between individual and collective memory in the context of social media.

Keywords: digital memory, social media, listening reports, self-presentation, collective memory

1. Introduction

Memory serves as a crucial bridge that links the past, constructs the present, and allows for the imagination of the future. It embodies not only individual experiences but also collective identity. In the context of increasingly pervasive digital technologies, memory practices are being reshaped by technological mediation, with individuals gradually—whether actively or passively—delegating memory to technological systems. As the media environment becomes more platformized and data-driven, users' everyday behaviors leave continuous traces online, which are systematically archived and algorithmically processed, reorganized into new, visualized forms of memory.

Within this digital turn, social media platforms have emerged not only as vital arenas of digital life but also as multifunctional spaces for the preservation, stimulation, creation, and reconfiguration of memory. User behaviors are persistently tracked and processed by algorithms, which consolidate fragmented data into annual "year-in-review" reports, turning mundane personal records into ritualized and identity-laden narratives.

In the domain of music-based social media, this practice takes on particularly emotional and cultural dimensions. As a powerful medium of memory, music can both evoke artistic perceptions of everyday life and reflect broader cultural shifts embedded in historical contexts. In recent years, China's two major music social media platforms—NetEase Cloud Music and QQ Music—have launched annual listening reports that exemplify this digital memory practice. These reports, akin to Apple Music's "Replay" or Spotify's "Wrapped," are generated through algorithmic modeling of a user's yearly listening data, presenting their musical preferences, stylistic inclinations, and time-based listening patterns.

This paper focuses on the phenomenon of annual listening reports on music-based social media platforms. It aims to explore how these reports are embedded within digital memory systems and how they shape the construction of individual memory and the emergence of collective memory. Through this lens, the study seeks to offer a novel perspective on the mechanisms and cultural practices of memory in the social media era.

2. Literature Review

2.1 Research on Music-Based Social Media and Self-Presentation

The concept of "self-presentation" was first introduced by sociologist Erving Goffman (1959), who employed a dramaturgical metaphor in his seminal work *The Presentation of Self in Everyday Life*. He distinguished between the "front stage," where individuals perform idealized versions of themselves in social interactions, and the "back stage," where they retreat to their private, authentic selves. Building on this, Leary and Kowalski (1990) further developed the theory into a two-component model of impression management, encompassing both impression motivation and impression construction.

With the proliferation of social media, self-presentation has become more controllable, multidimensional, and sustainable, attracting considerable scholarly attention. Some researchers have turned their focus specifically to music-based social platforms to explore how users express their identities through music selection and sharing. For instance, Johnson (2018) observed that users on music and film platforms selectively present their preferences to convey their actual selves, ideal selves, or the selves they believe others expect of them. In the Chinese academic context, scholars have examined the semiotic construction of identity on music social platforms. Zhang Ru (2019), for example, explored how users construct "musical personas" through playlist creation and comment interaction, framing this as a cultural practice of self-identification. Wang Li (2024) analyzed the motivational drivers of music-sharing behavior, arguing that such behavior is often rooted in the desire for self-expression and constitutes a significant form of self-presentation.

However, most existing studies on music-based social media focus on everyday user behavior and community culture. Research on platform-generated content, particularly annual reports, is scarce, and systematic examinations of the mechanisms of self-presentation within these reports are even more limited. This gap provides a valuable entry point for the present study.

2.2 Research on Technology and Digital Memory

The term "digital memory" was first proposed by Dutch scholar José van Dijck (2007) in her book *Mediated Memories in the Digital Age*. She argued that in an era when digital media are deeply embedded in everyday life, the processes of producing, preserving, and disseminating memory are increasingly mediated by technology. Digital memory, she posits, is not merely a passive recording mechanism but a socially and culturally negotiated process. Moreover, digital memory is a product of human-machine collaboration that mediates relationships between individuals and others, and between individuals and the collective.

Andrew Hoskins (2011) further expanded on this with his "connective turn" theory, emphasizing that memory formation has become increasingly reliant on the connectivity between people and digital devices. Media platforms act as structural containers of memory, rendering it real-time, networked, and fluid. In the Chinese context, Chen Zhenhua (2016) approached collective memory from a communication studies perspective, highlighting how the integration of technology transforms memory into a space for power reproduction and ideological negotiation.

In recent years, with the advancement of algorithmic recommendations and data visualization technologies, year-end content generated by platforms based on user behavior has emerged as a new vehicle for digital memory. Some scholars have begun to explore how such reports function as "external memory devices" that assist users in reconstructing cognitive and emotional memories. Zeng Yani and Xu Hangyan (2024) pointed out that annual reports use labeling, visualization, and temporal sequencing to transform fragmented user behaviors into emotionally resonant digital archives. Huang Shunming and Chen Zhaobo (2024) examined the "On This Day" feature on QQ Space, analyzing how algorithms trigger user reminiscence and re-mediation actions—such as deleting old posts or modifying privacy settings—in response to the psychological tension between memory and reality.

Despite these contributions, most existing research centers on text- and image-based social platforms, with limited attention given to how auditory symbols—especially music—contribute to digital memory. Music, as a time-based and symbolically rich medium, possesses a powerful capacity to evoke memory, often serving as a trigger for deeply personal emotional recollections. The annual listening reports produced by NetEase Cloud Music and QQ Music exemplify this phenomenon, enhancing auditory memory through visual means and linking individual music preferences to shared emotional atmospheres. Therefore, this study selects music-based social media as its focus and analyzes annual listening reports as case studies, aiming to fill a gap in the current literature on digital memory practices.

3. Research Design

3.1 Research Questions

This study seeks to investigate how digital memory is constructed and negotiated on music-based social media platforms, with a particular focus on users' interactions with annual listening reports. To conclude, the study addresses the following three core research questions:

1. How do music-based social media platforms construct personalized digital memory through annual listening reports?
2. In algorithm-driven music platforms, how do users participate in the reconstruction of digital memory?
3. How do users engage in online self-presentation through listening reports, and how is individual memory linked to collective memory in this process?

3.2 Research Methods

To explore these questions, the study employs two qualitative research methods: participatory observation and semi-structured interviews.

First, a close analysis was conducted of the annual listening reports released over the past three years by QQ Music and NetEase Cloud Music. This involved examining the narrative structures and presentation formats used in the reports, with a focus on how platforms construct personal digital memories. In addition, user interactions with these reports were observed on social media platforms, especially Red Note, to understand how users respond to and present themselves through these reports in a broader social context.

Second, eight active users of QQ Music and/or NetEase Cloud Music were recruited for semi-structured interviews. Participants were selected based on their visible engagement with listening reports on Red Note, ensuring relevant insights into their listening habits, attitudes toward annual reports, motivations for self-presentation (e.g., posting image carousels or sharing playlists), and perspectives on the practice of curating "pre-arranged playlists" in anticipation of the reports.

Table 1. Interviewee Information

ID	Age	Platform(s) Used	Listening Frequency
A1	20	QQ Music	Occasionally, 30 minutes/day
A2	20	QQ Music, NetEase Cloud	Daily, 5 hours/day
A3	21	QQ Music	Daily, 3 hours/day
A4	21	QQ Music(main); NetEase (less)	Daily, 9 hours/day
A5	20	NetEase Cloud Music	Daily, 20 minutes/day
A6	21	QQ Music	Irregular, up to 10 hours on some days
A7	20	QQ Music	Daily, 3 hours/day
A8	20	QQ Music	Daily, 2 hours/day

4. Research Findings

4.1 Narrative Features of Music-Based Social Media

Annual listening reports on music-based social media platforms use algorithmically extracted data to highlight emotionally resonant listening moments, constructing a personalized narrative of the user's musical year. Both QQ Music and NetEase Cloud Music consistently present core metrics such as total listening time, favorite artists, and genre preferences, while continually experimenting with new narrative formats. The reports exhibit two key narrative characteristics:

First, the narratives on music-related social media exhibit the characteristics of multimodality and concrete representation of user profiles. Both platforms adopt a "theme-first" narrative strategy, framing reports within motifs such as journeys, exhibitions, or virtual avatars to infuse storytelling into raw data. QQ Music emphasizes positioning the user as the "protagonist" of the musical year, with features such as musical train rides and personalized albums. NetEase Cloud Music, by contrast, focuses more on emotion and social interaction—for example, the 2024 "dual report" function was introduced to enhance emotional connection between users. These platforms integrate text, data, and charts into a multimodal, interactive presentation. However, despite innovations

in form, narrative homogenization remains a problem: thematic creativity and visual diversity are limited. Based on the annual music listening reports covering three years, we have summarized the narrative themes, page colors, and innovative features (as shown in the following figure).

Table 2. Key Features of Annual Listening Reports on Two Major Platforms

Year	Platform	Theme	Color Scheme	Key Innovation
2024	QQ Music	Exclusive Annual Album	Black & Silver	Personalized albums emphasizing memory uniqueness
2024	NetEase Cloud Music	Life is a Wilderness, So is Music	Dopamine Colors	"Dual report" to promote interpersonal connection
2023	QQ Music	Music Exhibition	Gray	MBTI musical personality fusion with pop culture
2023	NetEase Cloud Music	We Meet in Music Eventually	Dopamine Colors	"Cloud Village: Ten Years of Memory" for nostalgia
2022	QQ Music	Musical Journey on a Train	Blue-Green	"Top 10 Songs" for linking personal and collective
2022	NetEase Cloud Music	Every Emotion Is Real	Light Blue	Taste distribution map to highlight individuality

Second, the narratives on music-related social media exhibit the characteristics of multi-dimensional emotional narratives in memory texts. The reports are structured along a temporal axis and convert data into memory texts imbued with emotional resonance. By highlighting specific moments—such as late-night listening sessions or songs placed on repeat—they help users recall fragmented experiences and associate songs with personal life contexts.

Platforms also convert personal symbols into collective ones through social diffusion. For example, interviewee A4, a gaming enthusiast, and A7, a K-pop fan, reported discovering strong alignment between their top songs and those of their communities, fostering emotional resonance. A7 noted: "I realized that tens of thousands of people also love SEVENTEEN. It proves our shared taste in music." In recent years, NetEase Cloud Music has increased intimacy with users by including handwritten letters from top artists in its reports. Most notably, the platform introduced its "dual report" in 2024, analyzing mutual favorite artists, songs, and shared listening time to calculate "compatibility scores," thereby fostering social bonding and user loyalty.

4.2 Media Algorithmic Limitations and User Negotiation

While annual reports aim to personalize memory narratives, they often suffer from algorithmic bias and structural limitations that distort users' actual listening patterns. Despite creative features like musical MBTI, many users found the personalization inaccurate or oversimplified. QQ Music, for example, infers personality based on user comments, search behavior, and genres. One user (A7) complained: "I listen to K-pop a lot, and the algorithm labeled me as a 15-year-old ESTJ. It even said my psychological age is too young—completely ridiculous." Similarly, NetEase Cloud's "Monthly Mental State" often overuses generic buzzwords like passion, failing to reflect users' emotional nuance. A5 commented: "I only listen to music when I'm feeling down. Yet the algorithm labeled my mood as 'passionate.' That's inaccurate."

Other issues include the premature cutoff of data in early December, which excludes high-frequency listening in the year's final weeks. A1 lamented: "I looped a background track all night, but it didn't make the report. Instead, a song I barely listened to—some aerobics track—got listed as my annual top song."

Moreover, cross-platform listening habits—such as watching live performances on Bilibili or hearing trending songs on TikTok—aren't captured by single-platform algorithms, leading to fragmented and incomplete memory portraits. Rather than passively accepting algorithmic results, many users actively engage in "negotiation" tactics to align reports with their self-image. Two primary strategies were identified:

Firstly, daily reports can help fill in the gaps between annual reports and actual events. The annual report, due to its highly generalized nature, often fails to accurately restore the emotional context and temporal sequence of the listening behavior. Users supplement the generality of annual reports with detailed weekly or monthly reports. For example, QQ Music offers six time-segmented data visualizations showing listening patterns throughout the day.

A8 reflected: "Sometimes I check my daily reports. They remind me that I was looping those songs because I was obsessed with a variety show at the time."

Secondly, users will take advantage of the algorithm's limitation of only considering the duration and quantity of playback to "pre-create playlists" in advance, towards the end of the year. When the algorithmically generated musical persona deviates from the user's ideal self-image, individuals often engage in strategic behaviors to reconstruct their musical preferences. These strategies include curating specific playlists, repeatedly playing songs by particular artists, and deliberately streaming music during specific periods to influence algorithmic output. This study argues that such "pre-arranged playlists" represent a form of deliberate frontstage performance on social media. Through these orchestrated actions, users construct an idealized self, engage in impression management, and continuously reinforce their socially situated identity and sense of group affiliation by sharing specific musical tastes.

One interviewee (A2), who had created a pre-arranged playlist the previous year, explained: "To make my annual report look more organized and to showcase my loyalty, I ensured that the same artist appeared as my top artist every year."

However, none of the other interviewees endorsed this behavior. Some described it as a "waste of time," "performative personality," or even "self-deception." To some extent, the act of using pre-arranged playlists as a means of self-presentation can lead users into a cycle of social comparison, causing them to lose touch with their authentic selves in the process of "performance."

In summary, while algorithms aim to generate personalized digital memories for users, tensions remain between technological logic and the complexities of user behavior. Through active participation and strategic adaptation, users not only compensate for systemic shortcomings but also demonstrate agency and reflexivity in their interaction with technology in the digital age.

4.3 Self-Presentation Through Concealment and Sharing

Users' self-presentation via listening reports operates in two primary modes: private archiving for strong-tied networks (backstage), and public performance for broader social exposure (frontstage). Among the eight interviewees, three shared reports on social media, two shared only with close friends, and three opted not to share at all, revealing differentiated self-presentation strategies.

These self-presentation practices generally fall into two categories:

The first characteristic is social concealment: the self-archiving of memory.

Some users choose not to share their annual listening reports publicly, either because they regard music as a personal form of entertainment or due to privacy concerns. For those who share their reports only with close friends, such selective disclosure often stems from shared interests and interpersonal trust. Friends who share similar musical tastes are more likely to understand and resonate with each other's listening preferences.

One interviewee (A4), a player of online games, stated: "I think my playlists are quite private, but I still share parts of them with other Onmyoji players, because my top artist for three consecutive years has been associated with that game."

Users who post their reports to semi-public spaces like WeChat Moments often limit their sharing to key highlights such as top artists or songs. In these cases, sharing serves as a way to document life moments and archive digital memories. Another interviewee (A1) mentioned sharing only one surprising or ironic page from the report, stating: "To spark interaction, I just shared a page that stood out—my top song was an aerobics track. I hoped my friends would laugh at the absurdity with me."

Such forms of segmented sharing reflect a conservative mode of self-presentation. Users selectively display their unique musical tastes to specific groups to gain recognition, while simultaneously protecting their privacy. This enables individuals to maintain differentiated identities across various social contexts, reducing the risks of overexposure while fulfilling emotional needs for resonance and belonging. Whether through refusal to share or hidden modes of disclosure, these users prioritize self-archiving of musical memories over public performance or impression management.

The second characteristic is collective remembrance: sharing as social resonance.

Other users openly share their listening reports not only to enrich their digital memory, but also to initiate a broader circulation within affinity groups through the algorithmic push of platforms such as Red Note. This process helps generate collective resonance and gradually contributes to the formation of collective memory.

Although several interviewees were more oriented toward private memory practices, Red Note's visually friendly and report-compatible format has led to a proliferation of public posts. Users often share screenshots of their top artists and songs, prompting like-minded commenters to "assemble" in the comment section. In doing so, they actively seek out interest-based communities, engage in interaction, and gain social validation by showcasing their musical identity.

In this process, each retrieves fragments of emotional experiences and cultural memory within the digital space, and through resonance with others, participates in constructing a shared memory environment. Emotional resonance allows individual memory to radiate outward and evolve into collective memory.

By sharing screenshots of beloved artists and songs, users embed long-term affective associations into shared social rituals and symbolic exchanges. In this way, certain songs and performers transcend temporal and spatial boundaries, serving as bridges between different generations and cultures. These shared musical references not only strengthen emotional ties between the individual and the collective but also offer a common language and memory framework that fosters cultural continuity and societal cohesion.

5. Conclusion and Discussion

This study explored the digital memory practices associated with annual listening reports on music-based social media platforms, focusing on QQ Music and NetEase Cloud Music. Using participatory observation and semi-structured interviews, the research analyzed how these platforms construct memory narratives, how users negotiate with algorithms, and how self-presentation strategies shape both individual and collective memory. The study also reveals a dual mechanism of self-presentation: backstage practices centered on memory archiving and strong-tie sharing, and frontstage performances that aim for emotional resonance and identity signaling in broader social circles. Listening reports serve not only as a tool for self-expression but also as a medium through which individual experiences are woven into collective memory. Public sharing on platforms like Red Note allows users to connect with affinity groups, fostering shared emotional narratives and contributing to the construction of collective musical memory.

These findings offer practical implications for music platforms and social media developers. Understanding user strategies and emotional needs can inform the design of more nuanced and inclusive memory features, enabling platforms to serve better users' identity construction, social interaction, and emotional expression. That said, the study is limited by the relatively small and homogeneous sample of interviewees, which may not capture the full diversity of user experiences. Future research could broaden the demographic scope, incorporate longitudinal methods, or explore cross-cultural comparisons to deepen understanding of digital memory practices in different musical and social contexts.

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