The Impact of Personalised Playlists on User Retention: A Case Study of NetEast Cloud Music's 'Daylist' Feature

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Abstract. In China's increasingly crowded music streaming market, competition among platforms is beginning to shift towards personalization rather than the scale of the repertoire. NetEase Cloud Music achieves this through algorithmic playlists such as "Daily List" and real-time "Private FM". This study examines how personalized playlists affect user behavior and ultimately influence the retention rate of users on the platform. This study has proposed different levels, such as the alignment of content demands on the platform to avoid two-choice overload and increase daily usage, emotional resonance to promote the evolution of the platform's personalized algorithm, and social attributes like sharing and commenting to extend user usage. The pre-analysis is consistent with the existing evidence: Personalization significantly improves retention through satisfaction. On the basis of "precision", inject controlled diverse performance to relieve aesthetic fatigue; The co-creation function amplifies the above effects. The research contribution is to enhance diversity while maintaining precision for actionable products, explain the reasons for recommendations, introduce co-created playlists, optimize the experience and strengthen the platform's competitiveness.

Keywords: Personalized recommendation, Daylist; user retention, music streaming, NetEase Cloud music.

1. Introduction

Online music platforms have developed rapidly in recent years, and the market competition is extremely fierce. Take the Chinese market as an example. Music Groups such as QQ Music, Kugou and NetEase Cloud Music hold a dominant position in the music platform market. Among them, NetEase Cloud Music has grown into the second-largest music streaming platform in China since its launch in 2013 [1]. By the end of 2024, NetEase Cloud Music had over 200 million monthly active users. NetEase Cloud Music has been able to secure a place in a highly competitive market largely due to its differentiated features, such as a rich choice of community interaction activities and personalized recommendations [2]. Some research shows that powerful social functions and personalized recommendations are among the main reasons why NetEase Cloud Music is widely favoured by users. Personalized recommendation technology helps users discover music they are interested in from a vast music library by creating playlists based on their preferences, thereby enhancing user experience and satisfaction. In big data, the core driving forces for users to continuously use and subscribe are discovering new music and collecting it, as well as completing follow-up visits. In other words, if the platform can continuously provide users with new content that suits their tastes, it will effectively increase the user retention rate [3].

Against this backdrop, this article will focus on the personalized playlists of NetEase Cloud Music and explore the mechanism by which they affect user retention rates. Firstly, introduce the current situation of the NetEase Cloud Music and the technical logic of recommendation. Secondly, analyze the specific mechanism by which personalized playlists enhance user retention, and sort out the existing problems and optimization suggestions. Finally, summarize the full text and look forward to the future research directions. The research in this article helps to understand how online music platforms enhance user stickiness through personalized services and has reference significance for the industry to optimize product functions.

2. Logic Analysis

From the perspective of platform algorithm logic, NetEase Cloud Music's recommendations system integrates collaborative filtering algorithms and context analysis technology based on deep learning. Collaborative Filtering is a popular method for personalized recommendation. It is based on collecting a large number of users' behavioral data to discover the patterns and habits between users and music items, thereby predicting the content that users may like. Collaborative filtering has been the most commonly used technology from the past to the present because its basic principle is simple [4]. It creates an interaction matrix between users and songs, and calculates the similarity. For instance, NetEase Cloud Music recommends songs or playlists based on users' playback history, duration, collection preferences, and the degree of overlap with other users with similar tastes.

Meanwhile, deep learning has also played an important role. This algorithm is good at handling features in data. Its first function is to select features from song audio using data and integrate content features to enhance the recommendation effect. Secondly, based on the sequence model, study the user's playback behavior, such as playback sequence, time period and other sequence patterns, to achieve context-aware personalized recommendation. Its algorithm tracks various behavioral data of users (such as looping, skipping, sharing, collecting, etc.) and analyzes them with deep learning models to depict changes in users' music preferences [5].

In NetEase Cloud Music, the mechanism for generating personalized playlists is also well worth analyzing. It is mainly reflected in two functions: ''Daily Recommended Playlist (Daylist)'' and ''Private FM''.

Every morning, NetEase Cloud Music automatically generates a new personalized playlist based on the user's recent listening preferences and long-term musical tastes. The playlist usually includes dozens of system-selected songs, covering both new songs that users may be interested in and little-known masterpieces hidden in the music library. This mechanism significantly reduces the cost for users to filter music by themselves. Users only need to open the app every day to obtain a music list. The algorithmic logic behind Daylist integrates collaborative filtering and content analysis. On the one hand, it selects songs of similar styles or related ones based on user's past playback history and rating preferences. On the other hand, it also adjusts the recommended content in combination with information such as the music style and context (such as early morning or late night). For instance, if a user has been frequently listening to classic old songs with a gentle rhythm recently, the daily recommendations might tend to select songs with soft tunes as morning music, thereby fitting the user's current mood and scene. NetEase Cloud Music will also continuously optimize the next day's playlist based on users' feedback on the previous daily recommendation, such as skipping or saving a certain song, to form a feedback logic. Through the daily recommendation function, the platform enables users to develop the habit of listening to recommended playlists every day, thereby establishing user follow-ups [6].

If the daily playlist meets users' need to obtain new content at regular times, then private FM satisfies users' demand for personalized music listening anytime and anywhere. Private FM is equivalent to a user's exclusive music radio station: Users only need to click to enter private FM, and the system will continuously play personalized songs based on their current music listening history and preferences. During playback, users can perform operations such as liking and skipping songs. The system will learn these feedbacks in real time and adjust the subsequent tracks to be played. When users don't know what they want to listen to or can't find a playlist they like, they can completely choose private FM. It will automatically play music that suits the user's taste, and also intersperse a certain proportion of new songs to expand the user's musical territory [7]. Private FM offers convenient and personalized music accompaniment services. According to the official introduction, personalized recommendations (including daily playlists and private FM) have become the main channel for users to discover songs. This mechanism lowers the threshold for users to search independently, allowing them to enjoy music effortlessly. A survey indicates that over 30% of users on the NetEase Cloud Music platform actively participate in and listen to the songs recommended by

the system, reflecting that this feature has been deeply integrated into daily usage scenarios and significantly changed the traditional usage mode where users manually search for songs [8].

3. The Influence Mechanism of Personalized Playlists on User Retentions

The most direct effect of personalized playlists is to reduce the time and energy users spend searching for their favorite content in a vast music library, thereby increasing the frequency of platform usage [7]. Modern streaming media platforms contain tens of millions of songs. For users, the choice itself becomes a burden. Without recommendation guidance, users are likely to be at a loss due to an excess of information. As relevant research indicates, in an environment with massive content, recommendation systems can act as guides between users and content, preventing users from being overwhelmed by too many options. Specifically, functions such as daily recommended playlists and private FM are equivalent to customizing menus for users: users can directly listen to music that suits their preferences without repeatedly searching or browsing the charts. In this way, the threshold for users to use the platform has been greatly reduced, and the usage frequency has increased accordingly. Some users even reported: ‘‘Sometimes I can't even clearly describe my own taste, but after listening to the recommended list, I find that these songs really suit my taste.’’ [9]. This indicates that intelligent recommendations can help users discover preferences that they themselves haven’t even realized. For instance, the daily playlist of NetEase Cloud Music is updated every day. This sense of ritual drives users to log in to the App every day and receive an unexpected surprise playlist, thus helping users form a continuous usage habit and develop a stable loyalty to the platform over time. This high-frequency usage, in turn, accumulates more user behavior data for the platform, enabling the recommendation system to continuously optimize and form a virtuous cycle. It significantly reduces the cost for users to obtain satisfaction, further increases the frequency of user usage, and plays a positive role in promoting user retention.

Music has emotional attributes. Netease Cloud Music evokes users' emotional resonance and strengthens emotional identity through personalized playlists and related functions. Its recommendation algorithm not only pushes songs, but also captures the relationship between users' emotions and music, and pushes songs that match their emotions, so that the strong emotional experience generated by users can be attributed to the platform and the recognition can be enhanced. The annual song listening report is the key to emotional marketing: at the end of the year, a personalized report is generated based on users' annual song listening data, covering the duration, favorite songs, unique habits, etc., and presented in a beautiful visual way. These exclusive memories resonate, which not only quantifies the taste of music, but also evokes the user's review and self-identification of the past. Users feedback that they are "innovative", share them on social platforms, interact with friends, strengthen their sense of participation and honor, and then generate a sense of group belonging and platform communication upsurge, deepening emotional dependence. In addition, the creative activities of the platform (such as drawing exclusive images according to the history of listening to songs) also enhance recognition and make users feel concerned. These services with emotional temperature combine music and emotional experience to make users feel understood and accompanied, which is the deep logic retained by users.

A major feature of Netease Cloud Music is its powerful social attributes. Personalized playlists not only connect people with music but also become interpersonal ties. Users can share playlists, comment on songs, listen together in different places and other interactions to extend their stay time and enhance their stickiness. Playlist sharing makes music a social currency: users find that their favorite content can be shared with one click, and friends push each other to form a good atmosphere. This kind of interaction encourages users to use the App more frequently, not only to get shareable topic music, but also to explore new content because of friends sharing. Just as the user feedback: "Friends around us are using it, sharing it is convenient, and they can also watch each other's homepages and listen to songs", forming a virtuous circle of "social stay longer-the more you use it, the more social it becomes". The comment area is another highlight, with tens of thousands of

messages under each song forming a unique community culture. Users share feelings, stories and interact, and gradually become a virtual music community. Research shows that over 60% users will read comments, and about 25% frequently participate in comments. There are more than 270,000 comments on popular songs, and the first one likes nearly 660,000. Many users fall in love with the platform because of interesting comments. These User-generated Content (UGC) contents make listening to songs become a social experience, and turning songs into stories resonates, satisfying deep emotional needs, turning individual listening to songs into a group sharing experience, bringing a sense of belonging, which not only enhances stickiness, but also enlivens the community atmosphere.

4. Improvement

Although NetEase Cloud Music's personalized playlists have achieved remarkable results in improving user retention, there are still some problems that need to be urgently addressed. Firstly, the repetitiveness of algorithmic recommendations may lead to users' aesthetic fatigue. If a recommendation system keeps pushing songs based on users' existing preferences for a long time, it may confine users to a familiar music style circle. Over time, users may feel monotonous and bored. As relevant research has pointed out, due to algorithms being overly focused on users' past behaviors, the recommended information users obtain often lacks diversity, forming a closed "personalized bubble" for each user. In NetEase Cloud Music, some experienced users have reported that the daily recommended playlists sometimes repeatedly feature songs of similar styles, meaning the recommended flavors are too narrow and fail to bring a sense of novelty. Once this kind of aesthetic fatigue occurs, users' sense of surprise and desire to explore when using it will decrease, and they may reduce their reliance on the platform. Therefore, how to strike a balance between precise recommendation and diversity is one of the challenges that NetEase Cloud Music is facing. Secondly, the problem of relatively single social functions is becoming increasingly prominent. Although NetEase Cloud Music has created a unique community atmosphere through comment sections and other means, it still has limitations in terms of social interaction forms. At present, social interaction mainly focuses on superficial interactions such as comments, likes and follows, and there is a lack of more diverse channels for cooperation and interaction among users. This has led to the social interaction of NetEase Cloud Music remaining more at the content level, lacking a direct interpersonal interaction experience. In contrast, some foreign media platforms have begun to explore new forms of social listening. For instance, Spotify has launched collaborative playlists and group chat features, allowing multiple users to jointly edit the same playlist or listen simultaneously [10].

Although NetEase Cloud Music currently has these social interaction features, they lack uniqueness and innovation. Therefore, the platform needs to face up to its shortcomings in social functions. Finally, there are also issues worthy of attention in terms of user privacy and algorithm transparency. Personalized recommendations are based on in-depth analysis of user behavior. Some users may be concerned that their music listening data is overly collected or utilized. Furthermore, when the recommendation results are overly precise, users may feel uncomfortable. This requires the platform to not only optimize the algorithm but also enhance the explanation of the algorithm mechanism and the protection of user data privacy, so as to increase user trust. In conclusion, algorithm duplication, social limitations, and privacy transparency are the main issues that NetEase Cloud Music faces in the operation of personalized playlists, which need to be improved through adjustments in technology and strategy.

First, enhance the diversity of recommendation algorithms. While maintaining precise matching, introduce a certain degree of heterogeneous recommendations to prevent users from getting trapped in a narrow taste cycle. One strategy is to insert some special musical styles into the daily recommended playlist and private FM. The algorithm selects a few songs each time that have slightly different musical styles or artists but can establish connections based on the user's past habits, in order to expand the user's musical boundaries. Research shows that enhancing the diversity of

recommended content can help improve user satisfaction and retention rates, as users gain a sense of novelty when exploring new music. NetEase Cloud Music can utilize deep learning models to better understand the differences and correlations among music, and dynamically balance familiarity and novelty in personalized playlists. For instance, by integrating knowledge graph-based recommendations, familiar singers can be linked with related emerging singers for recommendation, or an exploration channel can be added to allow users to independently choose whether to accept more diverse song recommendations.

By consciously injecting diversity into the algorithm, the platform can prevent aesthetic fatigue, constantly bring surprises to users, and thereby extend the user life cycle. Secondly, enrich the forms of social interaction. Drawing on the successful experiences of other platforms, NetEase Cloud Music could consider launching more innovative features such as playlist co-creation. More collaborative gameplay will significantly enhance the interaction and stickiness among users and also provide new channels for users to showcase their taste and participate in creation. Meanwhile, the platform can explore real-time social listening functions, such as launching a "Multiple Friends Listen Together" mode: initiating a private room or a public room, inviting friends to listen to songs simultaneously and chat, comment or connect in real time, simulating the scene of listening to songs together offline. The introduction of such functions will further transform NetEase Cloud Music from a one-way content consumption platform into a two-way interactive social space. In addition, the community operation strategy can be upgraded to encourage more content creation, such as holding playlist collection competitions, music topic discussions and other activities, to enhance users' sense of participation and creativity. For high-quality user-created playlists and music reviews, they give them exposure and rewards to create a good community atmosphere. Finally, in terms of data privacy and algorithm transparency, NetEase Cloud Music should enhance compliance and communication. On the one hand, strictly abide by the user data protection regulations and grant users the right to manage the recommended data; On the other hand, appropriately explain the reasons for the recommendation to the user, for example, prompt "Based on..." "Because you often listen to a certain style, we recommend this song," etc., to increase the understandability of the algorithm. These measures will enhance users' trust in the platform and help with long-term retention. Therefore, NetEase Cloud Music is expected to further consolidate its advantage in personalized recommendations, maintain users' sense of novelty and belong to the platform, and stay ahead in the fierce market competition.

5. Improvement

This article focuses on the personalized playlist of NetEase Cloud Music and analyzes its influence on mechanism on user retention rate. Research has found that NetEase Cloud Music, through advanced collaborative filtering and deep learning algorithms, provides users with personalized services such as daily recommended playlists and private FM, reducing the cost of music selection for users and significantly increasing their usage frequency and platform stickiness. Meanwhile, the emotional resonance triggered by personalized playlists has strengthened users' emotional identification with the platform, and the social functions have prolonged users' stay time, creating a unique music community atmosphere. These factors contributed to the improvement of user retention rate. Of course, NetEase Cloud Music also faces some challenges in the operation of personalized recommendation, such as the possible narrowing of taste and aesthetic fatigue caused by algorithms, and the need to enrich the forms of social interaction. To conclude, this paper proposes optimization suggestions such as enhancing recommendation diversity, expanding social functions, and improving algorithm transparency, with the aim of further improving user experience and extending the user life cycle. Looking ahead, in general, the importance of personalized playlists as a powerful tool for online music platforms to retain users will continue to rise. NetEase Cloud Music needs to constantly innovate in both technology and product aspects, balancing the relationship between precision and diversity, individuality and social interaction, to provide users with a music experience that not only

matches their preferences but also broadens their horizons. Only in this way can one maintain the long-term favor of users in the fiercely streaming media era.

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