Framing Theory on Music Streaming Platforms: How Vocabulary Influences Music Playlist Decision-Making and Expectations

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Abstract

To improve decision-making and prevent information overload, music streaming services try to offer users personalized content. Vocabulary can be an important component in achieving personalization, in addition to recommender systems that ensure users are given access to their musical preferences. One way to apply personalization through vocabulary is to use personal pronouns. However, it is still unclear how the use of vocabulary personalization affects users' decisions and expectations when it comes to music streaming services. This study aims to explore how vocabulary framing in playlist titles influences decision-making and the content expectations of the music playlist. Despite challenges in making informed vocabulary choices, our results show a substantial impact of personalized vocabulary in playlist titles on user choice and overall expectations. Users distinctly favor playlists with personalized vocabulary, emphasizing their crucial role in enhancing the music streaming experience.

Keywords

Framing, Music Playlist, Decision-Making, Vocabulary, Expectations

1. Introduction

The rapid growth of digitalization has significantly impacted various aspects of our daily lives, with online streaming services representing a prominent digital development. These platforms provide users with the ability to access a wide array of content at any time or place. However, the abundance of information and choices within these platforms can lead to information overload, negatively impacting the user experience [1]. To address this issue, streaming services employ recommender systems [2], which leverage machine learning to personalize content recommendations based on user preferences, enhancing efficiency and user satisfaction [3, 4]. Music streaming platforms aim to match music content to user preferences by considering intrinsic and extrinsic factors. Intrinsic factors are based on psychological measures, i.e. personality and emotional state. Extrinsic factors point towards the external influential factors, i.e. activity or location of the user [5].

In the current landscape of digital product optimization, the strategic implementation of user preferences through personalization, specifically with the application of framing, has become

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a focal point. The framing theory, emphasizing the influence of information presentation on people's perceptions and behavior [6], has been shown to impact users' potential decisions, shaping their choices and overall decision-making process [7, 6]. While there is much known about decision-making between different framing conditions, Ferwerda et al. [8] qualitatively investigated how perceived music playlist personalization influences content expectations and showed that the personalized implications of the title can influence the expectations that users have on the content. However, the influence of framing on content expectations has not been thoroughly investigated yet.

This study extends the research conducted by Ferwerda et al. [8] by adopting a quantitative approach to examine how vocabulary choices within music playlist titles impact users' expectations and choices. In this study, we aim to answer the following research questions (RQs):

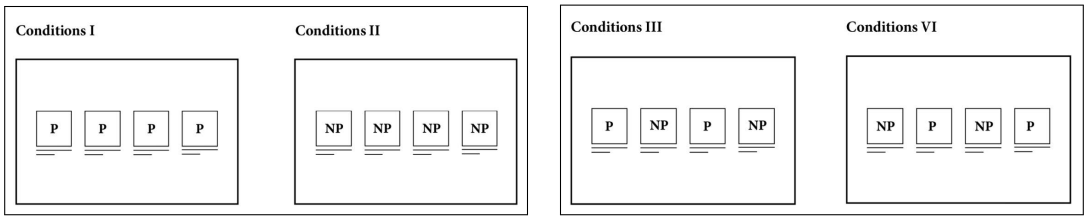
- RQ1: In what way does the vocabulary of playlist titles affect the user's decision-making in choosing a playlist?
- RQ2: In what way does the vocabulary of playlist titles affect the expectations of users?

2. Related work

The framing theory emphasizes that the way information is presented can affect individual perceptions and understanding [9, 10, 6], influential elements are tone, context, and emphasis in shaping information [11]. Studies across various fields, including psychology, marketing, and politics, have illustrated how the selection of vocabulary impacts decision-making and user engagement [6]. Personalization, as a concept, involves manipulating chosen, arranged, and presented information, products, and services to individuals. It is increasingly recognized as a vital component in avoiding information overload and catering to user preferences [12].

One significant aspect of personalization is through the use of vocabulary, often achieved through the use of personal pronouns [6]. This approach is prevalent in modern technology, where personalization aims to ensure a consistent user experience, not only in function but also in wording. In e-commerce, the language used to describe products has been shown to impact customer feelings and influence purchase decisions. Specifically, the use of second-person pronouns has been explored in marketing, with studies demonstrating increased consumer engagement and positive effects on brand attitude [13].

In the realm of music streaming platforms, personalized vocabulary is a significant consideration for playlist titles, artist names, album titles, and song descriptions. Personalization enhances users' overall experience and fosters a sense of engagement [14]. To ensure a positive user experience, a deeper understanding of the vocabulary effects is needed to effectively utilize the vocabulary in personalized playlists and features. In this study, quantitative findings are presented regarding the impact of personalized vocabulary on content expectations and choices made. This analysis plays a vital role in understanding how users interpret and respond to personalized content, ultimately influencing their decision-making process when selecting playlists and engaging with the music platform.



Round 1 of the experiment Round 2 of the experiment

Figure 1: Visual representation of the conditions. P = Personalized titles, NP = Non-Personalized titles

3. Methods

To investigate the effects of (personalized) vocabulary in playlist titles on decision-making and content expectations, an online survey was conducted. By conducting the survey online, we increased the reach for survey participants and provided the advantage of anonymity, fostering honest responses [2]. An online platform was developed, using HTML, CSS, and JavaScript to create a visually appealing and user-friendly design. Survey questions used Likert-type scales to measure participants' choices and expectations [15]. The Likert scale, with five options ranging from strongly disagree to strongly agree, provided a nuanced measurement of participants' responses. To encourage natural responses, we applied verbal labeling to the questions and kept them concise and clear, aiming to prevent misinterpretation. Questions were phrased with both positive and negative phrasings to validate responses and minimize measurement errors and response bias. Response scales were inverted accordingly for the analysis.

To conduct this survey, four conditions were designed (see Fig. 1). Each study condition was designed to showcase four items, each presenting playlist titles that were either personalized or non-personalized, differentiated by the vocabulary used: Condition I; All titles were personalized, Condition II; All titles were non-personalized, Condition III; Titles of the even items were personalized titles, and titles of the odd items were non-personalized and Condition IV; Even items with non-personalized titles, and odd items with non-personalized titles. The term 'even' refers to items positioned at the second and fourth place, while 'uneven' designates items placed at the first and third place. The terms 'even' and 'uneven' are used solely for descriptive purposes to indicate the placement of personalized and non-personalized items in this study. Participants were not explicitly made aware of these labeling criteria during the survey to maintain unbiased responses. The selection of these four conditions was driven by the objective of assessing participants' expectations when presented with playlists featuring either personalized or non-personalized titles.

The survey consisted of two rounds. In Round 1, participants were randomly assigned to either Condition I or Condition II. In Round 2, participants were randomly assigned to either Condition III or Condition IV.

The two-round structure included administering the same set of questions under different conditions and systematically exploring responses in varied scenarios. This approach aimed to improve data reliability by minimizing the impact of random variability. The iterative process facilitated a more accurate representation of participant preferences and decision-making.

Simultaneously, the two-round structure strengthened external validity by capturing diverse user responses across different conditions. This approach ensures broader applicability and relevance to a more extensive demographic, making our findings generalizable. Participants engaged in additional questions after completing both rounds, providing deeper insights into their perspectives on decision-making and content expectations.

The personalized titles, such as 'Your Favorite Beats,' intentionally included personal pronouns to enhance a sense of personalization. In contrast, non-personalized titles, like 'Summer Hits,' were deliberately generalized to eliminate any indication of personalization based on user preferences. To maintain objectivity and align with our study's objectives, the playlists were presented with consistent visuals, specifically, no distinct visual elements such as album art were introduced alongside the playlist titles. This intentional choice aimed to prevent potential bias arising from participants associating personal preferences with varying visual features, ensuring a uniform visual presentation resembling how playlists are typically displayed on music streaming platforms. (see Fig. 2 for an example).

Figure 2: Example of Condition IV consisting of personalized and non-personalized titles

3.1. Procedures

Before the start of the study, clear instructions were provided, and additional instructions were provided throughout the survey to foster accurate and reliable data collection. Participation was voluntary, and participants could exit the survey at any point. Prioritizing ethical and responsible research conduct aimed to maintain the validity of the data.

The initial phase involved preference elicitation to discover the participant's favorite music genres. The participant was presented with nine music genres and asked to indicate their preferences by selecting specific genres. The chosen genres were subsequently incorporated into the playlists presented to the participants, contingent upon the specific condition. After indicating their preferences, participants were randomly assigned to either Condition I or Condition II for the first round of the experiment and were asked to pick one playlist from the

list. Following this, the participants were presented with questions regarding their decision-making and content expectations.

To enhance data collection per participant, a strategic move was made to implement two rounds in the experiment. After completing round 1, participants were asked to fill in demographic questions to reset their thought process, ensuring a fresh perspective. This step aimed to prevent undue influence from their initial playlist decision-making. When participants continued to round 2, they were randomly assigned to Condition III or Condition IV. The conditions in this round consisted of a mixture of personalized and non-personalized items. The only difference between the conditions is whether the personalized items were placed in an even position or uneven position (out of four positions). Similar to round 1, participants were asked to pick a playlist of preference. After the decision-making process, questions were asked regarding their decision-making and content expectations. In Round 2 of the survey, the aim was to assess whether the distinct placement of items across these positions influenced participants' choices and expectations.

4. Results

During the study, a total of 111 participants participated. After filtering out the inadequate responses, data from 105 participants remained for inclusion in the data analysis process. The gender analysis of the participants revealed that 57 (54.3%) of the 105 valid responses were provided by female participants, and 48 (45.7%) were provided by male participants. The majority (61.0%) fell within the 18-34 age range.

4.1. Effect of Playlist Position on Decision-Making

To address RQ1, the goal was to explore how the vocabulary in playlist titles influences users' decision-making when selecting a playlist. This was done by capturing the choice that participants made when presented with a mix of personalized and non-personalized titles (Condition III/IV). To gain deeper insights into the influence of personalized vocabulary, two Chi-Square Tests were conducted. The first Chi-Square test compared choices made under different conditions, while the second test examined the impact of item placement on the decision-making process.

The results of the first Chi-Square Test revealed that participants were significantly more drawn to personalized playlists. Out of the total of 105 participants, 69 chose personalized playlists, and 36 chose non-personalized playlists. The Pearson Chi-Square resulted in $x^2(1, 105) = 6.391$, with $p = .011$. These findings suggest that including personalized vocabulary in the playlist titles did increase the participants' probability of selecting a personalized playlist.

The second Chi-Squared Test focused on the position of the items. In Condition III, personalized playlists were assigned to odd-numbered choice positions (1, 3), whereas in Condition IV, personalized playlists were assigned to even-numbered choice positions (2, 4). The results revealed a significant connection between the personalized or non-personalized status of a playlist and its placement ($x^2 = 8.096$, $df = 3$, $p = .044$). These findings suggest that the

placement of playlists had an impact on participants' choices, particularly for the fourth-choice position.

Notably, non-personalized items were more frequently chosen when placed in the fourth position, possibly because of their convenient accessibility within easy reach on mobile screens. Acknowledging this bias is crucial, especially for the playlists in position 4 (last position). However, even after excluding playlist four from the analysis, the results demonstrated a significant preference for playlists with personalized titles over non-personalized ones when participants were given the choice. The Chi-Squared Test consistently revealed this preference for personalized playlists, regardless of their placement. The data underscores a consistent favoring of personalized content by participants.

4.2. Playlists Expectations Based on the Vocabulary

To answer RQ2, the primary focus was on investigating the impact of vocabulary used in playlist titles on users' expectations of the playlists. The questions related to expectations in the survey were categorized into two groups: 'Expectations Playlist Choice,' (Table 1) which centered around the participants' decision-making of picking a playlist, and 'Expectations Playlist Recommendations,' (Table 2) which focused on the expectations arising from the overview of playlists recommended to the participants in general (see Fig. 3 Survey build-up).

4.2.1. Round 1

In the first round of the survey, participants were assigned to either Condition I (personalized titles) or Condition II (non-personalized titles) (Figure 1). After selecting a playlist, participants were asked questions about their expectations for its content, based on the provided title (Table 1). Subsequently, they were asked questions regarding the expectations they had on all the playlists that were presented that they could choose from (Table 2).

Upon analyzing the data regarding participants' expectations for the playlists they selected, a high Cronbach's Alpha value of 0.866 was observed. This suggests strong coherence within the items, indicating that the questions consistently assessed participants' expectations (Table 1). Despite this high reliability, the results did not meet the assumption of homogeneity of variances. Hence, we further analyzed the data using a Mann-Whitney test instead of the one-way ANOVA that was initially planned. The Mann-Whitney test demonstrated significant differences in expectations between the participants who were presented with Condition I ($n = 51$) and participants who were presented with Condition II ($n = 54$). The differences between the groups are based on $U = 370.00$ and $p < .001$ (two-tailed). As displayed in Fig. 4a, it can be seen how the scores of the personalized items were higher compared to the non-personalized items regarding expectations of the playlist chosen.

For a more comprehensive understanding of how the inclusion of personalization through vocabulary in playlist titles impacts expectations, a detailed analysis was undertaken on participants' expectations for all the playlists presented in their overview within the given condition (Table 2, $\alpha = 0.696$). Conducting a one-way ANOVA and examining data between groups revealed a significant difference ($F(1, 103) = 23.844$, $p < .001$). Participants choosing personalized items ($M = 3.7647$, $SD = 0.63916$) reported higher average regarding expectations than

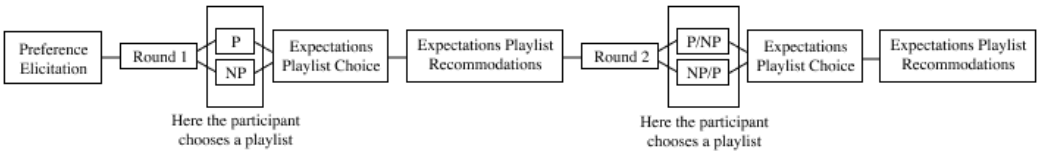


Figure 3: Experiment flow

Table 1
Expectations questions on for the chosen playlist.

1	The playlist suggests that it contains songs that were chosen based on my personal taste.
2	The playlist implies that it contains songs that were chosen based on my listening history or preferences.
3	This playlist probably contains songs that are based on my favorite genres and artists.
4	I expect this playlist to be tailored to my individual preferences rather than just a general selection of popular songs.

Table 2
Expectation questions regarding the overview of the four presented playlist titles.

1	The system recommended playlists that I expect to be in line with my personal preferences.
2	I do not expect that any of the playlists presented to me contain songs based on my personal taste.
3	The playlists that were provided to me appeared to be unrelated to my musical preferences.
4	I expect each song in the playlists offered to me to be generated based on my own preferences.

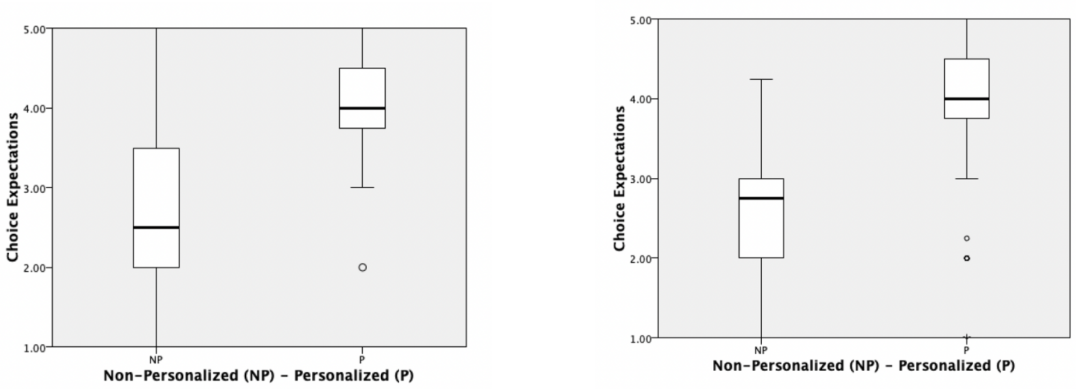
those choosing non-personalized items ($M = 3.0972$, $SD = 0.75301$), indicating a noteworthy contrast in the level of expectations.

The within-group analysis revealed varying expectation scores within the two groups, resulting in a total variance of 96.762 units ($SS = 96.762$) across both groups. In conclusion, the results highlight how the use of personalized vocabulary in playlist title influences expectations overall, even in the absence of access to the actual playlist content.

4.3. Round 2

After completing round 1, participants continued to round 2 of the survey. Whereas in round one, participants were provided with only personalized or non-personalized playlist titles (Conditions I and II), the second round provided a mixture of both personalized and non-personalized titles (Conditions III and IV) (Figure 1). In line with the first round, participants were once again tasked with selecting their preferred playlist. The questions mirrored those in the initial round, addressing both the expectations related to the chosen playlist and the general expectations regarding the playlists presented by the system.

When analyzing the expectations of the chosen playlists, the questions show high reliability with a Cronbach's Alpha value of 0.884, indicating strong internal consistency among the items (Table 1). This suggests that the questions reliably measured participants' expectations.



(a) Answers of participants in Condition I or II on their expectations

(b) Answers of participants in Condition III or IV on their expectations

Figure 4: Boxplots of the conditions on choice expectations.

The data collected from these questions was analyzed with a one-way ANOVA. Based on this one-way ANOVA, there was a significant difference in the answers when comparing the participants that either chose a personalized or non-personalized playlist ($F(1, 103) = 68.727$, $p =< .001$). The participants who selected a personalized playlist had an average expectation score of $M = 3.9710$ ($SD = 0.83527$), whereas those who chose a non-personalized playlist had an average score of $M = 2.6042$ ($SD = 0.73284$). Based on these results, it is evident that participants expressed higher scores of positive expectations with personalized playlists compared to non-personalized playlists, which can also be seen in Fig. 4b.

Upon analyzing the data related to the playlist expectations for the overview of the four presented playlist titles, the reliability analysis revealed a low Cronbach's Alpha value ($\alpha = 0.453$), indicating unreliable data for the study. The low alpha suggests inconsistent reliability across the included questions (Table 2). Considering this low alpha value, the decision was made to refrain from conducting an overall combined analysis for this set of questions.

5. Discussion

This study aimed to investigate the effect of wording on the choice and expectations of users in the context of playlist titles. The first research question in this study aimed to enhance comprehension regarding the impact of utilizing personalized vocabulary on decision-making. The findings presented in this section reveal a significant correlation between the choices made by participants and the use of personalized vocabulary in the playlists' titles. The majority of participants showed a strong preference for the playlists that included personalized vocabulary when they were shown a mix of playlists that included both titles with personalized vocabulary and titles with non-personalized vocabulary.

The second research question aimed to provide insights into the impact of vocabulary framing on user expectations within music streaming platforms by using (non-)personalized vocabulary

in the titles. Based on these findings, it can be concluded that framing can affect the expectations of users, and therefore, it is important to know how to apply framing through vocabulary in such a way that the user experience will be positive.

6. Conclusion

The findings of this study highlight the substantial impact of personalized vocabulary on user decision-making and content expectations. This underscores the crucial role that vocabulary choices play in guiding user interactions, even in the absence of specific playlist content. Importantly, these results align with the work of Ferwerda et al. [8], who demonstrated that people form distinct expectations based on the vocabulary used in content descriptions.

In summary, the study establishes a clear link between wording and the user experience, emphasizing the potential of personalized vocabulary to enhance the user experience on platforms. This finding resonates with Cruz et al.'s [13] exploration of the influence of second-person pronouns in marketing on consumer engagement and brand attitude. Their study underscored the positive effects of personalization, aligning with the objective to unravel how vocabulary shapes user experiences on music streaming platforms. While Cruz et al.'s [13] concentrated on the marketing domain, our study extends the scope to include music streaming platforms.

Furthermore, the research of Wang et al. [6] supports personalized experiences, asserting that online products should maintain consistency not only in function but also in the vocabulary used. This corresponds with our study, that focuses on the impact of vocabulary in playlist titles on user choices and expectations.

The study's practical implications highlight the importance of vocabulary choices in music streaming platforms. Personalized vocabulary, including personal pronouns and preferred genres, significantly influenced users' choices and expectations. However, these kinds of personalization should be applied with reasoning. Randomly applying personalized vocabulary to stress personalized content may counteract the intended effect. The study underscores the crucial role of vocabulary in shaping the user experience, specifically influencing user choices and expectations. These insights offer valuable guidance for professionals in user experience design, platform development, and content management, intending to enhance user engagement and expectations on digital platforms.

Scientifically, the study contributes significant insights into the role of vocabulary framing in the user experience within digital platforms, particularly music streaming services. The findings extend beyond the specific context of music platforms, offering valuable implications for user experience design in diverse digital environments.

Future research avenues include extending the current study. A more comprehensive understanding of the impact of playlist titles on the user experience could be achieved by incorporating real user data, potentially through platforms like Spotify using APIs. Exploring additional dimensions of personalization beyond personal pronouns, such as personalized descriptions or greetings, could further enrich the understanding of how vocabulary elements contribute to positive user experiences. Additionally, investigating user expectations with a larger participant pool and exploring the influence of playlist content on expectations could offer deeper insights. Future studies that build upon these avenues can contribute to a better understanding of how

vocabulary impacts the user experience, aiding the development of user-centric platforms.

7. Limitations

While this study provides valuable insights into the impact of vocabulary on user experiences in music streaming platforms, it is essential to critically assess the study's limitations, as they may influence the interpretation of the results.

One significant challenge in this study was the absence of a direct API integration with a music streaming platform. While the study simulated conditions that aimed to replicate real-world scenarios, the lack of direct access to platform data could have implications for the authenticity of user interactions and preferences. In conclusion, the absence of actual playlist content in this study limits its ability to comprehensively capture the complexities of user interactions and preferences. Future research should explore the effects of incorporating content within a playlist, investigating how such inclusions influence user expectations and the decision-making process.

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