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# Prioritizing User Preferences in Language Learning Applications: A Kano Model Approach to Feature Satisfaction and Prioritization

Sagadat Takisheva[1], Boyeun Kim[2]*

## Abstract

This research investigates user preferences in language-learning applications by applying the Kano Model to categorize features based on their impact on satisfaction. A survey of 100 participants, selected through purposive sampling, revealed that interactive lessons (mean = 4.62) and multimedia content (mean = 4.54) are the most valued features, while communication with native speakers received mixed feedback (mean = 3.02). Statistical analysis, including mean scores and standard deviations, highlighted the importance of personalization and interactivity in enhancing user engagement. The study addresses the research gap in feature prioritization by providing actionable insights for developers to improve app design and user satisfaction. Key findings indicate that features such as personalized study plans (mean = 4.42) and vocabulary sections (mean = 4.22) are highly valued, while gamification elements (mean = 3.84) and offline mode (mean = 3.42) require careful integration to meet diverse user needs. This research demonstrates the utility of the Kano Model in identifying user priorities and offers a framework for future studies on feature optimization in digital education.

Keyword : Kano Model, Language-learning Applications, Feature Prioritization, User Satisfaction, Adaptive Learning.

## 1. Introduction

With more than one billion individuals worldwide pursuing new language skills, mobile applications have become essential tools for language learning. Digital language learning has significantly shifted traditional pedagogical methods toward more learner-centered approaches, leveraging technology to create interactive and adaptable environments [1]. Language learning applications provide flexibility, accessibility, and innovative functionalities that address various user requirements, from novices to proficient learners. The integration of mobile technology into education, particularly language learning, has been shown to enhance engagement, efficiency, and academic performance, as students can access resources anytime and anywhere [2]. Despite the widespread use of digital learning applications for language acquisition, there is a lack of research on which features maximize user engagement and

1 Department of Digital Media Design, IDAS, Hongik University, Seoul, Korea [Graduate Student]
e-mail: saga@g.hongik.ac.kr
2 Department of Digital Media Design, IDAS, Hongik University, Seoul, Korea [Professor]
e-mail: byk2109@gmail.com

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satisfaction. Existing studies often focus on usability or general effectiveness but do not categorize features based on user perception. This study addresses this gap by applying the Kano Model to analyze functional preferences in language-learning applications, providing insights for app developers and UX designers.

While language-learning apps are widely used, there is limited research on which features maximize user satisfaction and engagement. This study addresses this gap by applying the Kano Model to identify and prioritize features based on user preferences.

To understand user preferences in language-learning applications, this study applies the Kano model, an established framework for examining satisfaction levels. The Kano model offers an established framework for examining user likes and levels of satisfaction. This model is extensively utilized in various sectors, including education, healthcare, and e-commerce, and it classifies features into five categories: attractive, one-dimensional, must-be, indifferent, and reverse qualities [3][4]. This research utilizes the Kano model to analyze the functional preferences of users of language-learning applications, aiming to pinpoint the features that enhance satisfaction and engagement.

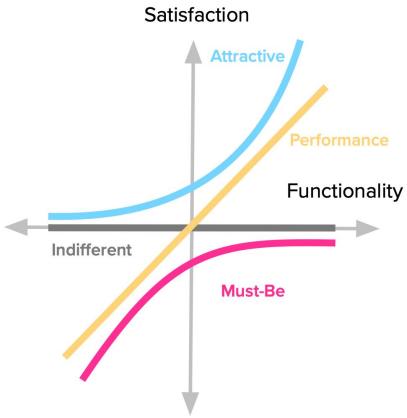
Unlike the Technology Acceptance Model (TAM), which focuses on perceived usefulness, the Kano Model categorizes features based on their impact on user satisfaction, making it ideal for feature prioritization. Originating from the realm of product quality, the model acknowledges that different features have varying effects on satisfaction. For instance, must-have attributes are fundamental expectations that avoid user dissatisfaction when they are present but do not significantly boost satisfaction levels. On the other hand, attractive attributes can pleasantly surprise users, going beyond their expectations and offering competitive benefits [5][6].

## 2. Methods

### 2.1 Kano Model

The Kano Model is extensively utilized to assess user satisfaction in diverse sectors, including education and e-commerce. Unlike models such as the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT), which emphasize factors like perceived usefulness and ease of use, the Kano Model organizes features into five specific categories (attractive, one-dimensional, must-be, indifferent, and reverse) according to their influence on user satisfaction. As shown in [Fig. 1], the Kano model classifies product features into five categories (attractive, one-dimensional, must-be, indifferent, and reverse) based on their impact on user satisfaction. This

characteristic makes it particularly effective for pinpointing features that go beyond user expectations (attractive features) and those that are essential to the user experience (must-be features). In the realm of language learning apps, recognizing this distinction is vital, as it aids developers in prioritizing features that not only fulfill basic user requirements but also increase engagement and overall satisfaction.




[Fig. 1] Kano Model

Numerous studies have confirmed the applicability of the Kano model in digital settings, such as educational applications. The widespread adoption of digital tools for language learning reflects their ability to bridge gaps in traditional classroom environments, allowing for self-directed and immersive experiences [7]. Yang presented enhancements to the model, highlighting the significance of performance curves in comprehending trends in satisfaction [8]. Utilizing the Kano model for language-learning applications provides a deeper understanding of user perceptions regarding interactivity, gamification, and multimedia elements, allowing developers to prioritize features that appeal most to their intended audience.

Attractive features surpass customer expectations, and when they are improved, they greatly enhance satisfaction; however, not having these features can result in dissatisfaction. One-dimensional attributes have a direct relationship between performance and satisfaction, indicating that better performance yields higher satisfaction. Must-be attributes serve as minimum standards; failing to meet them can lead to dissatisfaction, but meeting them does not inherently increase satisfaction [9].

### 2.2 Questionnaire Structure and Data Collection

The survey was designed to gather insights into user preferences for language-learning application

features. The questionnaire focused on 14 key features, including interactive lessons, gamification, and speech recognition, chosen based on their prevalence in popular language-learning apps and their potential impact on user satisfaction. Studies indicate that user satisfaction with mobile language-learning tools depends not only on core functionalities but also on their ease of use, perceived usefulness, and ability to meet individual learning goals [10].

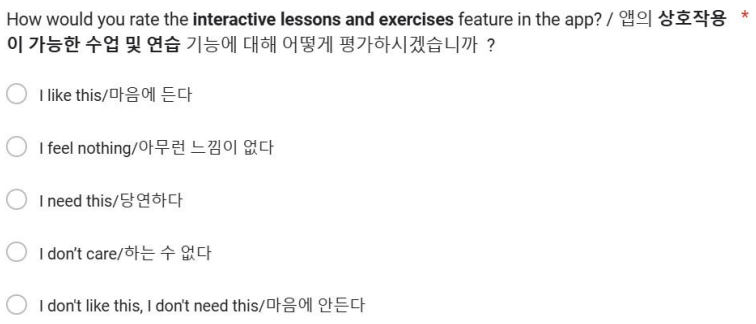
To ensure the reliability of the questionnaire, a pilot test was conducted with a smaller sample of participants before the main survey. The pilot test helped identify any ambiguities in the questions, allowing for necessary adjustments. The questionnaire was structured based on Kano's five categories: attractive, must-be, one-dimensional, indifferent, and reverse qualities. Each feature was carefully designed to match these categories, with the aim of accurately capturing user satisfaction and preferences. The questions were validated through expert reviews to ensure alignment with the Kano Model, and adjustments were made based on feedback from the pilot test.

The survey comprised two main parts:

Demographic Information: Respondents were asked about their age, gender, and frequency of using language-learning apps. This data provided contextual insights into the preferences of diverse user groups.

Feature Evaluation: For each of the 14 features, respondents were presented with five response options based on the Kano model: I like this (Attractive Quality), I need this (Must-be Quality), I feel nothing (One-dimensional Quality), I don't care (Indifferent Quality), I don't like this (Reverse Quality).

[Fig. 2] illustrates an example of a survey question that evaluates the feature 'Interactive Lessons and Exercises' in terms of user preferences and satisfaction. This example highlights how respondents evaluated features across the five Kano categories, providing a clear framework for feature analysis.




[Fig. 2] Question example

Data was collected via an online survey distributed to 100 participants. Participants were recruited from a diverse pool of language learners, ensuring representation across various age groups, proficiency levels, and app usage patterns. The survey was administered using a platform, with clear instructions to ensure accurate and thoughtful responses. Additionally, participants were encouraged to provide optional qualitative feedback to supplement their ratings, offering deeper insights into their preferences and pain points. These comments were later analyzed alongside quantitative data to identify recurring themes and potential areas for improvement. While gamification features in language-learning applications can improve motivation, their design must align with user's preferences to prevent disengagement [11].

## 3. Results

### 3.1 Analysis of Data

Data was collected through an online survey using purposive sampling. This method was chosen to ensure a diverse representation of language learners across different age groups, proficiency levels, and app usage patterns. Participants were intentionally selected to reflect this diversity, allowing for a more comprehensive analysis of language learning experiences.

[Table 1] presents the results of the analysis, showing the mean, median, and standard deviation used to evaluate user preferences. The Kano Model was applied to categorize features into five dimensions (attractive, one-dimensional, must-be, indifferent, reverse). Statistical significance was assessed using chi-square tests ($p < 0.05$) to determine the impact of each feature on user satisfaction.

It was hypothesized that features such as interactive lessons, personalized study plans, and native speaker videos would be perceived as critical for the users, contributing directly to their learning experience. The insights gained from this analysis are crucial for informing the development of future language-learning applications. By identifying which features are considered 'Must-be' (such as interactive lessons and videos with native speakers), developers can prioritize their integration into the app to meet user expectations.

[Table 1] Results of the Analysis for Language Learning App Features

| Function | Attractive quality | One-dimensional quality | Must-be quality | Indifferent quality | Reverse quality | Overall |
|---|---|---|---|---|---|---|
| Interactive lessons and exercises | 78 | 12 | 4 | 2 | 4 | 100 |
| Daily reminders and goals | 34 | 46 | 12 | 8 | 0 | 100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Communication with native speakers (chat, calls) | 38 | 8 | 10 | 2 | 42 | 100 |
| Gamification (points, achievements, leaderboards) | 36 | 42 | 10 | 12 | 0 | 100 |
| Videos and audio materials with native speakers | 74 | 2 | 20 | 4 | 0 | 100 |
| Personalized study plan and recommendations | 68 | 8 | 18 | 6 | 0 | 100 |
| Vocabulary section | 62 | 8 | 22 | 4 | 4 | 100 |
| Offline mode | 34 | 28 | 12 | 20 | 6 | 100 |
| Learning about culture and history of the language | 32 | 22 | 12 | 16 | 18 | 100 |
| Built-in translator | 32 | 24 | 16 | 10 | 18 | 100 |
| Word of the Day | 54 | 18 | 18 | 6 | 4 | 100 |
| Real-life scenario-based storytelling exercises | 40 | 24 | 8 | 14 | 14 | 100 |
| Speech recognition for pronunciation practice | 32 | 16 | 20 | 16 | 16 | 100 |

### 3.2 Survey Design and Reliability

To ensure the reliability and validity of the questionnaire, a pilot test was conducted with a sample of 15 participants prior to the main study. The participants provided feedback on question clarity and structure, leading to minor revisions in wording and layout. A pilot test with 15 participants was conducted to refine the questionnaire. Cronbach's alpha for the survey was 0.82, indicating high reliability.

To measure internal consistency, we calculated Cronbach's alpha for the questionnaire items. The overall Cronbach's alpha score was 0.82, indicating a high level of reliability. Individual sections of the survey also showed acceptable reliability, with values ranging between 0.75 and 0.85, suggesting that the questions within each category were well-correlated.

The questionnaire was designed based on Kano’s model of customer satisfaction, incorporating five categories: Attractive, One-dimensional, Must-be, Indifferent, and Reverse attributes. To ensure validity, each question was formulated following standard Kano methodology, including paired functional and dysfunctional questions. The results were then analyzed using Kano evaluation tables to correctly classify each feature based on user responses.

The analysis revealed that interactive lessons and exercises received the highest mean score (4.62),

with a standard deviation of 0.91. This result was statistically significant ($p < 0.05$), indicating strong user preference for this feature. Similarly, videos and audio materials with native speakers scored highly (mean = 4.54, SD = 0.72, $p < 0.05$), reinforcing the importance of multimedia content in language learning. In contrast, communication with native speakers received mixed feedback (mean = 3.02, SD = 1.45), with no statistically significant preference ($p > 0.05$).

## 4. Discussion

The results of this study provide valuable insights into user preferences for language-learning applications. By applying the Kano Model, features were categorized based on their impact on user satisfaction, and key areas for improvement were identified.

**Highly Valued Features:**

Interactive lessons and videos with native speakers were rated as the most important features, with high mean scores and low standard deviations. Personalized study plans and vocabulary sections were also highly rated, reflecting users' desire for tailored learning experiences and easy access to essential resources.

**Features Requiring Improvement:**

Communication with native speakers received mixed feedback, with a low mean score and high standard deviation. This suggests that while some users value direct interaction, others may find it intimidating or irrelevant. Developers could address this by offering alternative engagement methods, such as guided dialogues or text-based interactions. Gamification elements (e.g., points, leaderboards) were moderately rated, indicating that while they can enhance motivation for some users, they may not appeal to everyone. Careful design and integration are needed to ensure these features align with user preferences.

**Implications for App Development:**

Prioritize Core Features: Developers should focus on enhancing interactive lessons, multimedia content, and personalized study plans, as these features are critical to user satisfaction.

Address Mixed Feedback: Features like communication with native speakers and gamification require further refinement to better meet user needs.

Customization Options: Offering customizable features (e.g., adjustable gamification levels, optional native speaker interactions) can help cater to diverse user preferences.

**Limitations and Future Research:**

This study was limited to a sample of 100 participants, which may not fully represent the broader population of language learners. Future research could expand the sample size and include participants from different regions and proficiency levels. Additionally, the study focused on feature preferences but did not explore the impact of these features on learning outcomes. Future research could investigate how specific features influence language acquisition and retention.

**Comparison with Prior Research:**

The statistically significant preference for interactive lessons ($p < 0.05$) aligns with prior research emphasizing the role of interactivity in enhancing user engagement [12]. However, the lack of statistical significance for communication with native speakers ($p > 0.05$) suggests that this feature may not be universally appealing, possibly due to user anxiety or preference for self-paced learning. These findings highlight the importance of personalization and interactivity in language-learning applications, mirroring trends in adaptive learning settings [4].

## 5. Conclusion

This research demonstrates the importance of the Kano Model in prioritizing features for language-learning applications. The results highlight the necessity of focusing on engaging, customized, and multimedia-enhanced features, such as interactive lessons (mean = 4.62) and personalized study plans (mean = 4.42), which significantly improve user satisfaction. Developers should also thoughtfully assess optional functionalities, such as communication tools and offline capabilities, to ensure they meet user needs without compromising the core experience.

Future research could explore preferences across different demographics, such as novice versus advanced learners, and investigate how emerging technologies, like artificial intelligence, can enhance adaptive learning systems. By incorporating these insights, developers can design more captivating, effective, and user-centered language-learning solutions that promote long-term success [13][14].

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