

Study on user stickiness of Ximalaya APP Based on basic analysis of SPSS

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Abstract. With the development of network technology, the traditional radio station began to have a new development opportunities, mobile Internet radio began to come out. The audience can listen to the radio in different use scenarios such as traditional listening devices, smart mobile devices, vehicle devices and so on. In August 2012, Himalaya FM began to build an online audio sharing platform. Today, Ximalaya FM is firmly ranked as the largest number of users and the largest platform in China. As of 2019, Ximalaya apps have more than 600 million active users and have more than 80 million monthly active users, but how to enhance user engagement, improve user activity and usage duration is still a very important issue in the Ximalaya FM operation process. This paper mainly explores the factors influencing the stickiness of the Ximalaya FM users, and uses the literature research method and the questionnaire survey method to analyze the questionnaire sample through the SPSS data analysis. In-depth analysis of the Ximalaya FM users, including their use of behavior characteristics, attitude influence, and the use of quantitative research methods to analyze the factors affecting user stickiness.

Keywords: Ximalaya APP; User engagement; Influencing factors.

1. Research background

With the development of network technology, the traditional radio stations began to have new development opportunities, and the mobile Internet radio stations began to come out. The audience can listen to the radio in different use scenarios such as traditional listening devices, smart mobile devices, vehicle devices and so on.

Online radio began to explode in 2012, with the rapid development of App and the rapid update of terminal devices such as smartphones, hundreds of radio apps hit the shelves with 40 million users. Himalaya FM has been working hard to build an online audio sharing platform since August 2012, aiming at becoming a leading platform in the audio sector. Now the Ximalaya FM is the most domestic users and the largest platform, "a super" competition pattern is very significant, differentiation competition between platform will intensify, the content payment, anchor support, brand IP building and the development of intelligent hardware also obviously increased, especially 5G commercial and Internet of things for industry development, largely accelerate the full scene application of audio content, to strengthen the audio with attributes, play to the advantage of fragmented information. By 2019, Ximalaya has more than 600 million active users, with more than 80 million monthly active users and 10 million platform anchors, and more than 50 million overseas users, and mobile audio accounts for 67% of the market share. Ximalaya FM provides users with a variety of life services, including cars, finance, news, music, novels, a total of 328 kinds, of which bestsellers account for more than 70% of the audio copyright market.

The continuous expansion of Himalaya FM is closely related to its continuous innovation of content operation and channel operation. Through high-quality content output and good channel marketing, Himalaya FM is the platform with the largest number of users and the largest Internet radio users in China. But in the specific how to enhance user engagement and other issues should be more advanced to further remain invincible in the fierce competition.

2. Research content and design

2.1 Research Methods

The two research methods are:

The (1) Literature Research Method. Read the papers related to Ximalaya FM and user stickiness, sorted out the ideas, models and conclusions of different studies, and selected appropriate variables for this study.

The (2) questionnaire survey method. On the basis of the existing research, the questionnaire design was conducted for the users of the Ximalaya APP to provide data support for the research and analyze the influence degree through the data analysis.

2.2 Study design

2.2.1 Variable Selection

This paper mainly discusses the influencing factors of Ximalaya App user stickiness, based on the theoretical model of TAM and UTAUT selected perceived usefulness, perceived ease of use, community influence, convenience conditions, subjective norms as the independent variables in the model, at the same time, the gender, age, education and occupation in the respondents' personal information as regulatory variables and user will combined analysis.

2.2.2 Questionnaire design

During this questionnaire survey, a total of 251 questionnaires were recovered, 37 invalid samples were removed, and 214 valid sample questionnaires were obtained. The formal questionnaire is a total of 22 questions, mainly divided into three parts. The first part investigates the users' usage habits of the Ximalaya FM. The second part is the problem options set for the five variables in this study. The third part is the personal information section, mainly including gender, age, education background, occupation, and four regulatory variables. This questionnaire uses the Likert scale, with 2-4 questions for each variable in the test, and selects the five aspects of "very disagree", "disagree", "not necessarily", "agree", and "very agree".

2.2.3 Questionnaire distribution and recovery

This questionnaire is set in the questionnaire star, and the user groups who have used Himalaya FM are targeted through different media communities such as Weibo, moments, and Douban, and they are invited to participate in the questionnaire survey. The invalid samples with the "not used" option were removed. At this point, 251 samples were recovered. The final number of samples retained in this survey was 214, with an effective recovery rate of 85%.

3. Study results and sample analysis

3.1 Descriptive statistical analysis

The gender distribution of the sample was: 61.88% women and 38.12% men. Women are nearly twice the number of men.

The age distribution was as follows: most respondents were 20 to 30 years old, and the proportion of people under 20 years old and over 40 years old was relatively low, with only 15.57%.

The distribution of academic qualifications is: the number of undergraduates is the largest, accounting for 53.89%. Followed by junior college, technical secondary school and graduate students, accounting for 20.56%, 10.58% and 11.38%, respectively.

Occupational distribution is as follows: the enterprise staff accounted for 51.3%, occupying the first place. Individual industrial and commercial households were 14.17%, and students accounted for 17.96%. The staff of government organs or public institutions was 10.58%, accounting for a relatively small proportion. Retired people account for a relatively few.

To sum up, the questionnaire sample is mostly women, women aged 20-30, most have higher education, and most work in enterprises. The whole is more in line with the existing user group of Himalaya, which confirms that the subsequent research results have certain reference significance.

3.2 Use of behavioral characteristics analysis

Distribution of audio App usage time: 23 audio applications are in use for half a year or less, accounting for 10.54%, 57 in half a year-1 year, or 26.18%, 78 for 1-2 years, or 36.68%, 49 for over 2 years, or 22.9%, accounting for 2.8%. According to the data, 62.65%. The respondents used the product for more than 1 year, indicating that the quality of the sample is high and the quality of the questionnaire can be guaranteed.

In terms of the single use time of Ximalaya FM, 125 hours, accounting for 58.31%, were used for 0.5 hours, 55 for 1-2 hours, accounting for 25.53%, and 9 for more than 2 hours, accounting for 4.22%. Just listen to the closed 11.94 percent. As can be seen from the above data, Himalaya FM can not attract most users to use it for a long time. The samples selected this time have all used the Himalaya FM, and its structure is similar to the existing user group structure of the Himalaya, so the survey results are somewhat representative. This suggests that Himalaya should improve the appeal of the product as a whole, while allowing users to stay for a longer time.

In terms of the weekly use of Ximalaya FM, 76 people, using the product at least once a week, accounted for 35.51%. There are 70 people who can use their products more than 3 times a week, accounting for 32.79%. While 8.67% of the sample used the product at least once a day, 22.95% used it less than once a week. The data shows that some users still regard the Himalaya App product as a daily necessity.

The top four content types with high listening levels are: audio books, crosstalk, talk shows, and emotional FM. Most audiobook users, accounting for 45.43%, second, 87 users, listening to crosstalk, accounting for 40.98%, 85 users, accounting for 39.81%; 80 users, listening to emotional FM, accounting for 37.7%.

3.3 Analysis of the influencing factors of using attitude

Among the variables "perceived ease of use", 81.3% of respondents chose "agree" / "very agree" on "Ximalaya APP operation process simplicity"; 71.4% chose "agree" / "very agree" on "Ximalaya APP design is very humanized to find the anchor and content direction they are interested in". From the above data performance, generally speaking, more than half of the users think that the Ximalaya APP is simple and easy to use, and that the APP itself is scientific and reasonable in the development and setting of the plate.

Among the variables "perceived usefulness", 73.2% of respondents chose to "agree" / "strongly agree" on the question "The Ximalaya APP is useful for my life"; 69.4% chose to "agree" on obtaining rich and valuable content through the Ximalaya APP, and 58.2% chose to "agree" on the Ximalaya APP. From the above data performance, generally speaking, users have a high recognition of Himalaya APP, on the one hand, the recognition of Himalaya APP itself focuses on content output, on the other hand, it also shows the importance of the attention to content for enhancing user engagement.

Among the issues related to the variable "community impact", 69.9% of respondents chose "agree" / "very agree" on "influential others recommend me to use the Ximalaya APP"; 52.4% chose "agree" with "/" very agree "on" celebrity endorsement and promotional sponsorship of variety shows encourage me to use the Ximalaya APP ". According to the above data, strong relationship referees will most likely encourage users to use the Ximalaya APP, while the impact of celebrity endorsements is weaker. In the subsequent operation, Himalaya APP should strengthen the cultivation of community opinion leaders, namely professional anchors, which will be better effective than spending a lot of advertising money for publicity and endorsement.

Among the questions related to the variable "convenience condition", 84.3% of the respondents chose to "agree" / "very agree" on the question of "Rich resources on the Ximalaya App and more professional anchors attract me to use it".

Among the questions related to the variable "subjective specification", 73.6% of the respondents chose to "agree" / "very agree" on the question of "beautiful Ximalaya App interface and design specification will prompt me to use it". It shows that the current young people have very high requirements for "aesthetic", and Himalaya APP should make more efforts in product visual design, and try to achieve outstanding.

To sum up, we can see that the objects of this survey are mostly some old users, and the evaluation of Ximalaya FM has a very high reference value. However, the daily use time is short, the product to the user attraction is not high enough, need further improvement. In terms of listening types, we focus on the main business of the product, such as audio books, crosstalk, talk shows and so on. Users have high requirements for APP page design and the professionalism of anchors, while they are not very concerned about celebrity endorsement.

3.4 Confidence and validity analysis

Table 1. Reliability analysis

name	Total correction correlation (CITC)	Item deleted coefficient	Cronbach α coefficient
Convenience conditions	0.981	0.995	0.996
Subjective norms	0.987	0.995	
Community influence	0.978	0.995	
Perceived ease of use	0.98	0.995	
Perceived usefulness	0.986	0.995	
User willingness to use	0.982	0.995	
adhesiveness of user	0.981	0.995	
Standardized Cronbach α -coefficient: 0.996			

Table 2. Validity analysis

name	Factor load coefficient factor 1	Common degree (Common factor variance)
Perceived usefulness	0.99	0.979
Perceived ease of use	0.984	0.969
Community influence	0.983	0.966
Convenience conditions	0.985	0.971
Subjective norms	0.99	0.981
User willingness to use	0.987	0.973
adhesiveness of user	0.986	0.972
Feature root value (before rotation)	7.774	-
Variance interpretation rate of% (before rotation)	97.18%	-
Cumulative variance interpretation rate of% (before rotation)	97.18%	-
Feature root value (after rotation)	7.774	-
Variance interpretation rate of% (after rotation)	97.18%	-
Cumulative variance interpretation rate of% (after rotation)	97.18%	-
KMO price	0.969	-
Bart spherical values	11150.708	-
df	28	-
p price	0	-

Note: If the numbers in the table have color: blue indicates the large absolute value of the load coefficient
At 0.4, red indicates that the common degree (common factor variance) is less than 0.4.

The Cronbach α coefficient (Krumbarha coefficient) is the most commonly used measurement method to test reliability. Krumbarha coefficients are shown between 0 and 1, with higher coefficients indicating the higher reliability of the scale. A Krumbarha coefficient greater than 0.7 indicates the high confidence of the samples in the study. Except for the Krumbarha coefficient as a reference, if the CITC value is less than 0.3, the item can be excluded.

Table 3. Kmo and Bartlett's tests

KMO price		0.969
Approximate chi square		11150.708
Bartlett's spherical test	df	28
	p price	0

Table 2 show that the CITC values of the four items: perceived usefulness, perceived ease of use, community influence, and convenience conditions are 0.986, 0.98, 0.978, and 0.981, respectively. The CITC values for user willingness and user engagement were 0.982 and 0.981. The Krumbarha value is 0.996, which is greater than 0.7, indicating that the study data has high reliability. The coefficient of "Item deleted coefficient" indicates that there is no significant increasing trend in the Krumbarha coefficient after deleting an item, indicating that the topic will not be removed. The results showed that all the CITC values were above 0.4, indicating a good correlation between the indicators.

3.5 Correlation analysis

3.5.1 Analysis of convenience conditions, community influence, perceived ease of use, perceived usefulness and users' willingness to use it

The study analyzes the correlation of users' willingness and convenience conditions, community influence, perceived ease of use and perceived usefulness. The specific analysis is as follows:

The correlation coefficient value between (1) user willingness and convenience condition is 0.981, and the value is greater than 0, indicating that there is a positive relationship between user willingness and convenience condition, that is, the more convenient the condition, the stronger the user willingness to use.

The correlation coefficient value between (2) users' willingness to use and community influence is 0.988, and the value is greater than 0, indicating that there is a positive correlation between community influence and users' willingness to use, that is, the stronger the community influence, the stronger the users' willingness to use.

The correlation coefficient value between (3) user willingness and perceived ease of use is 0.989, and the value is greater than 0, indicating a positive relationship between perceived ease of use and users' willingness to use, that is, the stronger the perceived ease of use, the stronger the user's willingness to use.

The correlation coefficient value between (4) user willingness and perceived usefulness is 0.982, and the value is greater than 0, indicating a positive correlation between the user's willingness and perceived usefulness, that is, the stronger the perceived usefulness, the stronger the user's willingness to use.

Table 4. Correlation analysis

		Convenience conditions	Community influence	Perceived ease of use	Perceived usefulness
User willingness to use	correlation	0.981**	0.988**	0.989**	0.982**
	p price	0	0	0	0
		* p<0.05 ** p<0.01			

3.5.2 Correlation analysis between user willingness, subjective norms and user stickiness

The correlation between user stickiness and user willingness and subjective norms was analyzed respectively. Specific analysis shows that:

The correlation coefficient value between (1) user engagement and user willingness is 0.970, and the value is greater than 0, indicating a positive relationship between user engagement and user willingness, that is, the stronger the user willingness, the stronger the user engagement.

The correlation coefficient value between (2) user viscosity and subjective norm is 0.976, and the value is greater than 0, indicating a positive correlation between user viscosity and subjective norm, that is, the stronger the subjective norm, the stronger the user viscosity.

Table 5. Correlation analysis

		User willingness to use	Subjective norms
adhesiveness of user	correlation	0.970**	0.976**
	p price	0	0
		* p<0.05 ** p<0.01	

3.6 Hypothesis test results and model correction

According to the above data analysis, it can be concluded that the test results of the hypothesis in this paper: (1) (2) (3) (4) (5) hypothesis passes the test, and the five variables of convenience conditions, perceived ease of use, perceived usefulness, community influence and subjective norms are all important factors affecting Ximalaya FM user stickiness, and have a significant positive impact on user stickiness. No correction is required for this model.

4. Conclusion and reflection

4.1 Study Conclusion

Based on the existing model, three conclusions are drawn from SPSS:

The viscosity of Ximalaya FM users selected in this study were well fit.

Five variables, including perceived ease of use, proposed in the research hypothesis, all positively affect user engagement. According to the survey, perceived ease of use is embodied in simple operation process, humanized product design; perception in the product feel valuable, product decompression and other additional value; community influence in influential others, celebrity endorsements, variety shows to use the product; convenience is embodied in the product can provide rich resources to users; and subjective norms in interpersonal and affect the audience by media.

Third, there is no correlation between user stickiness and gender and education; user stickiness and age. In the 20-30 age group, the older the user stickiness; user stickiness and occupation. In terms of user stickiness strength, enterprise staff> individual industrial and commercial households> students> government agencies / public institution staff.

4.2 Insufficient research

Although the present paper ically analyzed the influence factors of Ximalaya FM user stickiness by questionnaire method, there are still some defects. Due to the small number of samples collected, the insufficient information of the samples, and the regional distribution of the sample survey and the data lacks the group representativeness, the research is not deep enough. Although the population data of the characteristics were collected, only descriptive analysis was conducted without variable research.

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