Research on Accurate Advertising Strategy Based on User Portrait

Xiangru Chen

E-mail: 848306040@qq.com

Communication University of China, Beijing, China, 100024

Abstract. This study aimed to explore the precise advertising strategy based on user portrait to improve the advertising conversion rate and effect. Data were collected using questionnaires and key factors influencing advertising were analyzed by multiple linear regression models. The research found that the user portrait can effectively guide the positioning, creative design and channel selection of advertising, and realize the accurate delivery of advertising. The research showed that the influence of purchase decision, comprehensive evaluation and formal attraction are the main factors affecting the effect of advertising. Based on these results, the advertising strategy was designed to highlight the product advantages and enhance the appeal and user trust in the advertising content. In addition, the strategy also considered the frequency and timing of delivery and the importance of multi-channel marketing.

Keywords: User portrait; precision; advertising; strategy

1 Introduction

With the rapid development of the Internet and mobile technology, the advertising industry is facing tremendous changes and challenges. Traditional advertising mode has been unable to meet the needs of personalized and precise advertising, and enterprises urgently need a more effective advertising strategy to improve the conversion rate and effect of advertising [1]. In this context, the precise advertising strategy based on user portraits has emerged. Therefore, this study aimed to conduct in-depth research on the precise advertising strategy based on user portrait, through the analysis and mining of user data, to build an accurate user portrait, and to design the corresponding advertising strategy, so as to improve the conversion rate and effect of advertising.

In China, research on accurate advertising strategies based on user portraits was in the ascendant [2]. On the one hand, researchers focused on how to obtain and analyze user data from multiple dimensions to build a comprehensive and accurate user portrait. On the other hand, domestic researchers also paid attention to how to match user portraits with advertising targets to achieve accurate advertising orientation. They proposed various targeted advertising algorithms, including targeted strategies based on geographical location, interest labels, behavioral characteristics, etc. The international researchers have also conducted a lot of research on the accurate advertising strategies based on user portraits [3-4]. They focused on how to discover users' behavior patterns and purchasing habits through data analysis and mining techniques. In addition, foreign researchers were also focusing on how to personalized

design of advertising ideas to better attract users' attention. They customized the content, form and style of their ads by analyzing users' interests, purchasing behavior and preferences. Some studies have also explored the use of technologies such as generative adversarial networks to generate personalized ad ideas.

Therefore, the main purpose of this study was to explore the precision advertising strategy based on user portraits. (1) Build user portraits: Through the collection and analysis of users' personal information, interests, preferences, behavioral data and other multidimensional data, built user portraits to deeply understand users' needs and characteristics; (2) Modeling analysis: Through the establishment of multiple linear regression model, the relevant factors affecting the precision advertising and their impact degree were analyzed, so as to provide data support for the subsequent development of effective advertising strategies; (3) Research on precise advertisement delivery: Based on the constructed user portrait and data model, researched on how to design effective advertisement delivery strategies to achieve accurate advertisement delivery and personalized recommendation.

2 Research Methods

2.1 Literature Review

Through comprehensive inspection and analysis of existing academic papers, journal articles and market research reports, we could understand the user portrait establishment methods and the development trend, advantages and disadvantages of advertising strategy. At the same time, according to the research objectives and problems, the literature related to this study could be selected for in-depth reading and analysis, so as to obtain an in-depth understanding of the user portrait and advertising.

2.2 Questionnaire Survey

The questionnaire survey method was to understand the attitude and acceptance of personalized advertising through the questionnaire survey, so as to provide reference for this study. By designing reasonable questionnaires, the data of the interviewees' basic information, interests, purchasing habits, acceptance of personalized advertising, preference for advertising content and other aspects can be obtained, and then the user portrait could be constructed.

2.3 Computer Data Modeling and Analysis

In this paper, we would combine the collected questionnaire data and its characteristics to select the appropriate data model for modeling analysis.

3. Use Computer Technology to Draw User Portraits and Data Analysis

3.1 Design

In order to effectively evaluate the specific impact elements of advertising effect, we could collect questionnaire feedback from users' awareness, attention, purchase intention, interest

correlation, form attraction and click intention, so as to comprehensively evaluate the impact of advertising on the target audience. Such evaluation could help advertisers understand how advertising performs in different channels, different content and different forms, so as to adjust the advertising strategy and improve the effect and return of advertising. The questionnaire is shown in Table S1.

3.2 Questionnaire survey and data analysis

A total of 355 questionnaires were distributed, 317 were collected, and 300 were valid. The relevant data statistics and analysis were as follows:

Table 1. Brief analysis of the questionnaire survey results and data.

Dimension	Subdivision	Data	Dimension	Subdivision	Data
Age distribution	Age 18 and below	8%	Advertising attention	General and above	70%
	19-25 years old	23%		Lower and very low	30%
	26-35 years old	32%	Purchase decision impact	Has/have no influence	40%
	36-45 years old	20%		Have the intention to buy	23%
	Age 46 and older	17%		Has purchased	10%
Sex ratio	The male sex	50%		Indeterminacy	17%
	Femininity	50%		Negative effect	10%
Residential community	Down town	37%	Content relevance	General and above	70%
	Suburbs	30%		Less very relevant and completely unrelated	30%
	Rural area	23%	Form and style of the appeal	General and above	79%
	Other	10%		Not very attractive and completely unattractive	21%
Educational status	Undergraduate college	50%	Click on the will	Will click	33%
	Master degree candidate	27%		Has been clicked	17%
	High school and below	13%		Won't click	20%
	Doctoral students or above	10%		Have learned	13%
Advertising	Social networks	40%		Indeterminacy	17%

Dimension	Subdivision	Data	Dimension	Subdivision	Data
channels					
	Search engine results page	27%	Frequency and time period of delivery	Too much frequency	33%
	News media website	17%		Time is appropriate	27%
	Video website	13%		Time is not appropriate	23%
	Other	3%		Frequency is insufficient	10%
Future willingness to buy	Indeterminacy	30%		No special opinion	7%
	Not willing to buy	27%	Overall merit	General and above	74%
	Willing to buy	43%		Poor and poor	26%

3.3 Establish A Multiple Linear Regression Model

3.3.1 Data Preprocessing

We took all the questions with a weak degree of compliance and easy to quantify as the data source for data analysis, and converted the options into numerical values, that is, the 5 options from strong to weak are represented by 5-1 respectively.

3.3.2 Building of Multiple Linear Regression Model

Next, multiple linear regression model could be used for analysis, with purchase intention assessment as the dependent variable, attention, purchase decision influence, interest correlation, formal attraction, click intention, advertising frequency and time period view, and comprehensive evaluation as the independent variables. Establish the regression equation:

Purchase intention evaluation = β_0 + β_1 * attention + β_2 * purchase decision impact + β_3 * interest correlation + β_4 * form attraction + β_5 * click intention + β_6 * advertising frequency and time view + β_7 * comprehensive evaluation

Where β_0 is the intercept, and $\beta_1 – \beta_7$ is the regression coefficient for the respective variables.

3.3.3 Results of the Model Operation

After the regression analysis using the statistical software, the following regression results were obtained:

Table 2. The regression results.

Coefficients	Estimate	Std.Error	t-value	P-value
Intercept	2.481	0.271	9.141	0.000

Coefficients	Estimate	Std.Error	t-value	P-value
attensity	0.013	0.038	0.348	0.730
Purchase decision impact	-0.162	0.040	-4.101	0.000
The relevance of interest	-0.012	0.041	-0.284	0.777
Form attraction	0.080	0.041	1.971	0.052
Click on the will	0.061	0.038	1.611	0.108
Advertising frequency and time period views	-0.019	0.039	-0.481	0.632
overall merit	0.184	0.040	4.641	0.000

3.3.4 Model Analysis

Based on the above regression results, we could obtain:

Purchase intention evaluation = 2.481 + 0.013 * Attention-0.162 * Impact of purchase decision-0.012 * Interest correlation + 0.080 * Form attraction + 0.061 * Click intention-0.019 * Advertising frequency and time period view + 0.184 * Comprehensive evaluation

It could be seen from the regression results that the influence of purchase decision and comprehensive evaluation have a significant positive impact on the assessment of purchase intention, while the influence of formal attraction is slightly insufficient, but it still has a certain positive impact. The degree of attention, the correlation of interest, the willingness to click and advertising frequency and time period had no significant impact on the assessment of purchase intention.

4 Discussion

The design of accurate advertising strategy based on user portrait needs to make full use of the results of regression analysis, and combine attention, interest correlation, click willingness, and user views of advertising frequency and time period. Here was a further discussion of the advertising strategy for these factors:

First, the purchase decision influence and comprehensive evaluation have a significant positive impact on the purchase intention assessment. In the advertising process, emphasis should be placed on highlighting the advantages of products or services, and promoting the formation of purchasing decisions by emphasizing its unique selling points and the ability to address user needs [5]. At the same time, in order to improve the comprehensive evaluation level, the content and quality of advertising need to arouse the goodwill and recognition of users, such as through customer evaluation, expert recommendation or satisfaction survey to increase the trust. Second, although the effect of formal attraction may be relatively small, it

still has a certain positive effect. Therefore, in the advertising design stage, we need to focus on attractive forms and styles to attract users' attention and stimulate their interest. Creative use of visual elements, audio effects, or dynamic content could increase the appeal and memory of ads [6-8]. In addition, the presentation mode of advertisements also needs to match the preferences and characteristics of the target user groups to improve the attractiveness of advertisements. However, degree of attention, correlation of interest, willingness to click and AD frequency and time period did not have a significant impact on purchase intention assessment. Nevertheless, these factors still need to be considered all together. When formulating advertising strategies, we can choose appropriate delivery channels and platforms according to user portraits and advertising positioning [9]. For example, for user groups with specific interests, you can choose to advertise on relevant social media platforms or professional websites [10]. In addition, the choice of delivery frequency and time periods should be determined by combining the user's online behavior and active time to ensure that the advertising can be effectively conveyed at the moment when the user is most concerned [11].

To sum up, the design of accurate advertising strategy based on user portrait should focus on highlighting the influence of purchase decision and comprehensive evaluation, and pay attention to the formal attraction in the advertising design. At the same time, it is necessary to combine the degree of attention, interest correlation, click willingness, advertising frequency and time period to develop an advertising strategy suitable for the target user groups.

5 Conclusion and Outlook

In this study, the precise advertising strategy based on user portrait was deeply discussed. The study showed that the establishment of multiple linear regression model is very effective for analyzing the key factors of advertising attraction, and the model results showed that the influence of purchasing decision, comprehensive evaluation and formal attraction are the main factors to improve the effect of advertising. In the future development, the advertising industry should continue to deepen the research on the user portrait, improve the data analysis and processing technology, and realize a more dynamic and real-time user behavior analysis. With the continuous progress of artificial intelligence, machine learning and big data technology, the delivery strategy of precision advertising will be more diversified and intelligent. The personalization and creativity of advertising content and the optimization of delivery technology will be the focus of future research.

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