

The Impact of Personalized Recommendations on Consumer Purchase Decisions on TikTok – A Case Study of College Students

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Abstract:

With the rapid rise of social media and short video platforms, TikTok has become an important channel for young people, especially college students, to acquire information and entertainment. Personalized recommendation, as one of the core functions of the TikTok platform, has a significant impact on consumers' purchasing decisions. This study investigates how TikTok's personalized recommendation mechanism affects users' purchasing desires and actual buying behavior by matching content filtering with user preferences, based on surveys and in-depth interviews with the college student group. The research finds that personalized recommendations play a positive role in improving purchase conversion rates but may also exacerbate users' tendencies towards impulsive buying. The paper further analyzes key factors affecting the effectiveness of the recommendations, including the relevance of recommended content, user engagement, and trust. On this basis, suggestions for optimizing personalized recommendation strategies and balancing user experience with commercial interests are proposed. This study is of theoretical and practical significance for understanding consumer behavior in the new media environment and provides insights and strategic references for platforms like TikTok.

Keywords: TikTok, Personalized Recommendation, Consumer Purchase Decision, College Students, User Behavior Analysis

1 Introduction

1.1 Research Background

With the rapid development of internet technology, social media has gradually permeated into people's daily lives, especially video-sharing platforms like TikTok, which have become one of the main entertainment methods for the younger generation. TikTok utilizes algorithmic recommendation technology to show users content they may be interested in, greatly enriching their online experience. This personalized recommendation not only changes the way information is consumed but also has a profound impact on users' purchasing behavior.

Taking college students as an example, as active users and major consumers of social media, their purchasing decisions are significantly influenced by the content recommended on platforms like TikTok. From a marketing perspective, understanding this pattern is of great practical significance in formulating effective marketing strategies. At the same time, this also involves a series of social issues such as user privacy protection, algorithm transparency, and information filter bubbles. Therefore, this study

aims to delve into how personalized recommendations on TikTok influence college students' purchasing decisions and the mechanisms behind this influence.

1.2 Research Objectives

The core objective of this research is to analyze the operational mechanism of personalized recommendations on the TikTok platform and evaluate its actual influence on the purchasing decisions of college students. By meticulously observing the interactive behaviors of college students on the TikTok platform, this study aims to uncover how personalized content recommendations align with users' needs and interests, and how this alignment translates into purchasing actions. Through the study of this specific group of college students, this paper aims to offer new perspectives and insights for understanding the online shopping behaviors of the younger generation of consumers.

1.3 Theoretical Significance

As a product of the advanced stage of digital and mobile internet technology development, big data's impact on today's communication field dominated by new media is

evident. From Bourdieu's perspective, big data not only provides technical support but also serves as a constructive force in shaping habits. It not only meets the needs of users of the internet and other new media but also creates and reinforces these needs, thereby forming a set of "reasonable/legal" behavior and thinking patterns, along with a corresponding discourse system, fundamentally reshaping the structure and ecology of the media field and the entire communication domain. Therefore, it is essential to delve deeply into the significance of big data in communication studies rather than merely considering it as a technological foundation for modern communication. This study aims to provide new perspectives and insights into understanding the online shopping behavior of young consumers by focusing on a specific group of university students.

2 Characteristics and Mechanism of Personalized Recommendations on TikTok

2.1 Algorithm and Technology Behind Personalized Recommendations on TikTok

TikTok, as a high-quality short video platform frequently used by young people, significantly influences user experience through its personalized recommendation capability. In terms of engineering implementation, TikTok relies on a sophisticated algorithm and technical system. The core of this system lies in the in-depth analysis of user behavior, accurately depicting users' interest profiles by capturing interactions on the platform such as likes, comments, dwell time, and video completion rates. TikTok's algorithm technology not only focuses on users' direct behaviors but also predicts hidden features that users may be interested in through machine learning and data mining techniques. For instance, clustering algorithms group users with similar interests and achieve cross-group content recommendations through the collaborative filtering mechanism of the recommendation system.

3 The Impact of Personalized Recommendations on Consumer Purchase Decisions

3.1 Personalized recommendations can impact the purchasing frequency of college students.

Consumer purchasing decisions are a dynamic process intertwined with the individual characteristics of consumers and their environment, influenced by various factors. The following summarizes primarily internal and external factors:

- Internal factors refer to the individual characteristics of consumers, including age, occupation, gender, education level, as well as personality traits such as product knowledge, lifestyle, values, and personal norms. These individual differences have varying degrees of impact on purchasing behavior.

- External factors encompass the consumer environment, social norms, cultural traditions, as well as marketing factors like price, product type, quality, and product reviews. TikTok's personalized recommendations have a comprehensive impact on college students' purchasing decisions. By analyzing user consumption behavior and continuously optimizing content recommendations, TikTok aims to achieve higher click-through and purchase rates. This interactive and personalized recommendation strategy fosters a new consumption habit among college students, leading them to search for and purchase products on TikTok. Once this habit is formed, it may have a profound impact on college students' long-term purchasing behavior.

3.2 The perception of the accuracy of personalized content recommendations affects the consumer decision-making of college students.

Personalized recommendation systems analyze users' browsing history, likes, and comments to learn their preferences and deliver corresponding products or content. When college students perceive that the recommended content aligns closely with their preferences, their willingness to make purchases significantly increases. This highly customized information flow not only saves users time in filtering information but also greatly stimulates their buying motivation. Simultaneously, accurate recommendations may spark curiosity in users about new brands or products, leading to actual purchase behavior.

Conversely, if the accuracy of personalized recommendations is low, college students may feel fatigued from frequent exposure to irrelevant content, leading to distrust in the platform. This accumulation of negative emotions could result in users ignoring recommended content and no longer relying on the TikTok platform for consumption decisions. Therefore, optimizing and improving the accuracy of TikTok's personalized recommendation system is crucial for maintaining and enhancing user engagement, as well as facilitating consumption decisions.

TikTok's personalized recommendations have a comprehensive impact on college students' purchasing decisions. By analyzing users' consumption behavior and continuously optimizing recommended content, TikTok aims to achieve higher click-through and purchase rates. This interactive and personalized recommendation strategy

shapes a new consumption habit among college students, where they seek and purchase products on TikTok through ongoing interactions. Once this habit is formed, it may have a profound impact on college students' long-term purchasing behavior.

3.3 Personalized recommendations can lead to impulsive consumption among college students.

On social media platforms like TikTok, personalized recommendations have become a showcase of intelligent algorithms. By analyzing users' browsing habits, search history, and interactions, these algorithms suggest content that users may find interesting. This precise content distribution mechanism often triggers impulsive consumption behavior among college students, a specific user group. TikTok's personalized recommendations cleverly exploit this psychological trait by subtly influencing their purchasing decisions through displaying product advertisements related to their personal interests.

Given that college students typically have weaker self-control, coupled with TikTok's simple and convenient shopping process, along with tactics like limited-time discounts and exclusive offers, purchases can be completed in just a few steps. This accelerates the conversion of users' desire to purchase into actual buying behavior, a

phenomenon particularly evident among college students.

4 Questionnaire Design

4.1 Sample Design

1. Sample Selection: The target audience for TikTok short video advertisements tends to be younger. Therefore, the research subjects were focused on college students. The selection process involved filtering and distinguishing individuals who have not used TikTok before, have not followed TikTok short video advertisements, or have varying degrees of familiarity with TikTok and its advertisements. This ensured that the research subjects were suitable high-quality TikTok users, enhancing the authenticity and validity of the survey data.

2. Questionnaire Design: Based on the above considerations, this study divided the research questionnaire into four parts. The Likert five-point scale was used for the design, where ratings from 1 to 5 represent "strongly disagree," "disagree," "neutral," "agree," and "strongly agree" respectively.

4.2 Data Analysis

This research survey was created using Wenjuanxing and distributed to TikTok user groups through online channels such as WeChat, QQ, and email. A total of 201 surveys were collected.

Validity analysis-1

project	divisor1	divisor2	divisor3	divisor4	divisor5	Common degree
I know the TikTok software very well	0.19	0.22	0.15	0.19	0.82	0.817
I use the TikTok software very frequently	0.19	0.26	0.21	0.21	0.81	0.848
I will like, reply or forward the TikTok video that I am interested in	0.22	0.19	0.14	0.06	0.85	0.823
TikTok Often recommend some interesting advertisements to me in time	0.18	0.25	0.83	0.09	0.12	0.804
I think the push frequency of TikTok ads is more reasonable	0.22	0.15	0.83	0.07	0.16	0.799

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TikTok The content of the ads is valuable to me	0.21	0.18	0.84	0.12	0.18	0.824
I will use TikTok for my purchases	0.15	0.25	0.09	0.83	0.12	0.800
I will buy the recommended product when I brush the TikTok	0.27	0.05	0.17	0.85	0.11	0.841
I often buy goods on TikTok	0.17	0.24	0.02	0.82	0.18	0.792
With the TikTok push, I think a product in the AD is worth buying	0.17	0.79	0.22	0.14	0.19	0.751
Through the TikTok push, I am full of desire to buy a product	0.22	0.81	0.08	0.14	0.18	0.766
In the future, I will prioritize the products recommended in TikTok	0.26	0.79	0.16	0.18	0.20	0.789
In the future, I will recommend people around me to buy the product if needed	0.21	0.76	0.25	0.19	0.18	0.757
When using TikTok to buy products, I have to buy goods that are not planned	0.78	0.18	0.24	0.17	0.06	0.733
When using TikTok to buy products, I was very emotional	0.75	0.22	0.20	0.20	0.06	0.697
When using TikTok to buy products, I feel hard to have	0.84	0.11	0.11	0.08	0.13	0.746
When using TikTok to buy products, my purchasing behavior is very irrational	0.78	0.21	0.15	0.11	0.10	0.702
When using TikTok, my purchase behavior was decided temporarily	0.81	0.18	0.10	0.09	0.17	0.732
When using TikTok, my buying behavior is off the norm	0.81	0.10	0.15	0.10	0.14	0.711
When using TikTok to buy products, I was not deliberate	0.79	0.11	0.06	0.10	0.14	0.674

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I was a little reckless when using TikTok to buy products	0.76	0.14	0.08	0.17	0.14	0.654
Characteristic root value (before rotation)	9.34	2.46	1.67	1.34	1.27	-
% Variance interpretation rate (before rotation)	44.45%	11.69%	7.93%	6.38%	6.04%	-
Cumulative variance interpretation rate% (before rotation)	44.45%	56.15%	64.08%	70.45%	76.49%	-
Characteristic root value (after rotation)	5.57	3.08	2.53	2.45	2.45	-
% Variance interpretation rate (after rotation)	26.51%	14.66%	12.03%	11.64%	11.64%	-
Cumulative variance interpretation rate% (after rotation)	26.51%	41.17%	53.20%	64.85%	76.49%	-
KMO price	0.921					-
Bart spherical values	2995.579					-
df	210.000					-
p price	-					-

correlation analysis-1

project	average value	standard deviation	I know the TikTok software very well	I know the TikTok software very well	I know the TikTok software very well	I know the TikTok software very well	I know the TikTok software very well
I know the TikTok software very well	3.27	1.38	1				
I use TikTok software	3.27	1.34	0.77**	1			
I will like, reply or forward the TikTok video that I am interested in	3.25	1.32	0.70**	0.75**	1		
TikTok Often recommend some interesting advertisements to me in time	3.27	1.42	0.33**	0.39**	0.32**	1	
I think the frequency of TikTok ads is reasonable	3.19	1.31	0.33**	0.40**	0.34**	0.69**	1
* p<0.05 ** p<0.01							

The specific descriptive statistics for each dimension are shown in Table 1.

Table 1 Descriptive Statistics

	minimum	maxmum	mean	Standard deviation
Basic use of subjectivity	3.00	15.00	9.79	4.02
Perception of the accuracy of the push notifications	3.00	15.00	9.62	4.09
Purchase frequency of college students	3.00	15.00	9.23	3.94
Purchase frequency of college students	4.00	20.00	13.17	5.34
Consumer measures of impulse purchases	8.00	40.00	25.89	10.82

The study utilized Pearson’s simple correlation coefficient to investigate the significant correlations among five dimensions: basic usage of the TikTok short video app by survey participants, subjective perception of push accu-

racy, purchase frequency of college student consumers, purchase intention of college student consumers, and impulsive buying behavior. The specific results are presented in Table 2.

Table 2: Correlation Test

	Basic Usage	Subjective Perception of Accuracy in Push Notifications	Frequency of purchasing among college students	College students’ purchasing intention	Impulse Buying Measurement
Basic use of subjectivity	1	0.988**	0.970**	0.992**	0.997**
Perception of the accuracy of the push notifications	0.988**	1	0.983**	0.983**	0.992**
Purchase frequency of college students	0.970**	0.983**	1	0.964**	0.978**
Consumer purchase intention of college students	0.992**	0.983**	0.964**	1	0.990**
Consumer measures of impulse purchases	0.997**	0.992**	0.978**	0.990**	1

** At the 0.01 level (two-tailed), the correlation is significant.

The analysis results indicate that the subjective perception of the accuracy of push notifications in the TikTok short video app, the purchasing frequency of college student consumers, their willingness to purchase, and impulsive buying behavior are all significantly correlated ($P < 0.05$). The subjective perception of push notification accuracy is significantly correlated with the basic usage, purchasing frequency, willingness to purchase, and impulsive

buying behavior of college student consumers ($P < 0.05$). The purchasing frequency of college student consumers is significantly correlated with the basic usage of the TikTok short video app, subjective perception of push notification accuracy, willingness to purchase, and impulsive buying behavior ($P < 0.05$). The willingness to purchase of college student consumers is significantly correlated with basic usage, subjective perception of push notification accura-

cy, purchasing frequency, and impulsive buying behavior ($P < 0.05$). The impulsive buying behavior dimension is also significantly correlated with the other four dimensions ($P < 0.05$). In conclusion, all the above variables are significantly correlated with each other.

5 Insights and Recommendations on Consumer Purchase Decisions from Personalized Recommendations on TikTok

In the research on the relationship between personalized recommendations on TikTok and college students' purchasing decisions, it can be observed that the platform's recommendation mechanism has subtly influenced the young consumer group. TikTok accurately depicts users' interests and needs through algorithms, thereby recommending suitable products or services to them, which to a large extent guides consumers' purchasing behavior.

In light of this, businesses and platform operators should deeply understand that personalized recommendations are not just a technical tool but also a crucial tool for shaping brand image and enhancing user experience. To better serve consumers, it is recommended that businesses pay more attention to the creativity and quality of content when promoting products. Specifically, attracting users by creating content highly relevant to their interests while ensuring its authenticity and appeal, avoiding user aversion caused by excessive commercialization.

On the platform side, optimizing algorithm recommendation logic to ensure the diversity and balance of recommended content is essential to prevent falling into an "information bubble" due to excessive precision. Furthermore, enhancing users' autonomy in adjusting preferences for recommended content can help them manage recommendations more easily, enhancing user satisfaction and fostering trust in the platform.

In today's context where personalized recommendations have become the norm, we must recognize that it has become an undeniable factor influencing consumer purchasing decisions. As participants in the market, whether platforms, businesses, or regulatory bodies, all should

collaborate to ensure that personalized recommendations serve as a tool that adds value to users rather than manipulates consumer choices. Through such efforts, TikTok and similar platforms can continue to drive innovation and development in the e-commerce industry while respecting users.

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