Analysis of Influencing Factors on the Number of Likes on TikTok

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Abstract: Given the speed at which technology is developing and the growing acceptance of the Internet, the status of social media has steadily risen, and short-video platforms led by TikTok have captured the attention of the majority of the public. The number of likes on TikTok is one of the key research topics today, and analyzing the influencing factors behind it has become crucial. The data in this article is sourced from the TikTok accounts of 11 of the most followed news agencies in the United States and Europe, and based on this, some tags with higher views have been classified. This article mainly conducts a multiple linear regression analysis on the data to investigate the primary determinants of TikTok's like count. Research finds that the type of video significantly affects the number of likes; videos in the second-person perspective are closely associated with the quantity of likes, and the length of time since the video was posted is positively correlated. However, as the number of likes is influenced by multiple factors, there may be omissions in the summary analysis, and further in-depth research is needed in the future.

1 INTRODUCTION

New social media platforms continue to appear as a result of changes in internet user tastes and information technology advancements. Short-video platforms, with their characteristics of short duration, rich content, and diverse forms, have rapidly spread on the internet and attracted a large number of users. Among them, TikTok, with its huge user activity volume, has become one of the mainstream media. It was the mobile application with the largest download volume in 2018 and 2019 (Li et al., 2021), and it is also the most widely used social networking site among Chinese Millennials (Qin, Omar and Musetti, 2022). Moreover, statistics show that the most active group on Tiktok are younger users (Montag et al., 2021). However, unexpectedly, the uninstallation rate of TikTok is 9.43% (Rahimullah et al., 2022), which is far greater than that of other social networking sites.

The most efficient method of improving user communication on TikTok is to look at the number of likes, which is considered a significant interaction indicator. The number of likes directly reflects users' preferences and behavioral patterns, and studying its influencing factors can better understand users' consumption psychology and behavioral characteristics. Irfan and Yaqoob (2024) pointed out that the algorithm of Tikotok drives the dissemination of content, allowing information to spread rapidly and reach diverse and extensive audiences. At the same time, the recommendation mechanism of TikTok determines that videos with high numbers of likes are more likely to be recommended (Sun, Zheng and Wu, 2023). Therefore, analyzing the influencing factors of the number of likes on short videos is of great significance for formulating more reasonable operation strategies, promoting more efficient big data algorithms for recommendation, and enhancing user stickiness.

At present, international scholars have conducted extensive research on the TikTok platform. For example, Sharabati et al. (2022) discovered that the desire for fame and wealth, social recognition, and self-expression are the main reasons people use TikTok. Shutsko (2020) stated that TikTok videos are for entertainment purposes and combine self-expression and self-presentation. These studies have a wide exploration range, but there are certain limitations in terms of specificity and purposefulness, making it difficult to fully reflect the specific

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situations in a certain country or globally. In contrast, from a micro-level perspective, analyzing the influencing factors of the number of likes helps to reveal the dissemination mechanism of TikTok and its key driving factors.

This study is based on the regression analysis method and aims to analyze the multiple influencing factors of the number of likes on TikTok, close the current research gap, assist in raising Douyin's user retention rate, and encourage the creation and sharing of high-caliber content, and thereby promote the healthy development of online culture.

2 METHODOLOGY

2.1 Data Source and Description

The data of this article is sourced from 1000 videos on the TikTok platform. The selection of these videos is based on their popularity, including the number of shares, comments, and likes. A more in-depth analysis was conducted on 100 of the most popular videos, and the popular types of videos and their influencing factors were discussed. The likes, shares, and comments of these videos accounted for the vast majority of all videos, namely 63.25%, 81.37%, and 76.73%, respectively. The data mainly comes from Germany, as the technical requirements of TikTok limit the sources of videos, which causes some limitations in the research results. For example, cultural factors may affect users' content preferences.

In addition, this article also collected the analysis data of videos posted by 11 major news agencies based in the United States and Europe on TikTok. These news agencies include ABC News, NBC News, CNN, etc., and each of them has a sizable following on the network. To build a complete data set, the researchers used a network crawler tool (TikTok API) to collect all the contents from the first video to the latest video posted by these accounts.

2.2 Methodology Introduction

This article mainly employs two analytical methods: linear correlation analysis and multiple linear regression analysis. Linear correlation analysis is applicable when dealing with two continuous variables and the data approximately follow a normal distribution. The degree of linear correlation between variables is measured by calculating the Pearson correlation coefficient. The value of the correlation coefficient ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation). The closer the value is to 1 or -1, the stronger the correlation is; the closer it is to 0, the weaker the correlation. Multiple linear regression analysis is a regression analysis method that studies the linear relationship between the dependent variable and multiple independent variables. It predicts the value of the dependent variable by fitting a linear equation, which takes into account the influence of multiple independent variables. The best-fitting line is found by minimizing the sum of squares of the vertical deviations of each data point from the line using the least squares approach.

3 RESULTS

3.1 The Analysis Results of the Types and Influencing Factors of TikTok Videos

The interaction data of TikTok videos, such as the frequency of likes, comments, and shares, are displayed in Tables 1 and 2, which also examine the videos' level of popularity.

Table 1: Distribution of TikTok popularity indicators across the 1,000 videos under analysis and the relationship between the characteristics

Popularity metrics	Likes	Comments	Shares	Followers
Maximum value	9,700,000	1,200,000	1,100,000	18,000,000
Minimum value	0	0	0	0
Median	109,450	942	2,000	78,200
Correlations				
Likes	1.000	0.463	0.746	0.244
Comments	0.463	1.000	0.341	0.100
Shares	0.746	0.341	1.000	0.114
Followers	0.244	0.100	0.114	1.000

Table 2: TikTok's most popular content categories based on like count

Category	Number of videos (n = 100)	Median: Number of likes
Comedy/Joke	33	2,300,000
Musical	14	2,200,000
Art & Architecture	14	1,850,000
Dance	9	2,300,000
Relationship	9	1,800,000
Animals	8	1,700,000
Challenges	8	2,400,000
Humanity/Charity	8	2,850,000
DIY & Tutorials	7	1,900,000
Skills	7	2,000,000
Not assignable	6	2,300,000
Fails & Spitefulness	5	2,600,000

Tables 1 and 2 present the distribution of popularity indicators and the correlation between parameters for the videos (N = 1,000). The results show that although some videos received a large number of interactions, the number of interactions of the videos recommended by the recommendation system was very uneven, with obvious peaks and troughs. From the results in Table 3, the comedy category maintained the leading position in terms of popularity and frequency, while the music performance and art architecture categories followed closely.

3.2 Analysis of the Videos Posted on TikTok

Table 3 conducts a linear regression analysis of various predictive factors and TikTok video user engagement. The main predictive variables include the time since the video was uploaded, video length, second-person perspective, and video sentiment. The evaluated indicators are: Like-To-View Ratio (LTV), Comment-To-View Ratio (CTV), and Share-To-View Ratio (STV).

Table 3: Linear regression analysis among all TikTok news videos.

Predictors	DV: Like-To-View Ratio (LTV)	DV: Comment-to-View Ratio (CTV)	DV: Share-To-View Ratio (STV)
Time since posted	0.368	0.020	0.167
Video length	0.053	0.037	0.077
Second-person view	0.150	0.062	0.034
Video sentiment	-0.073	-0.054	-0.036
Total R2 (%)	15.2%	0.9%	3.0%

Note. N (all TikTok news videos) = 49,782. ***p < .001.

From Table 3, it can be seen that the duration since the release is positively correlated with all three engagement indicators, indicating that the longer the video is released, the higher the audience engagement is generally. Although the video length has a relatively small impact on each engagement indicator, it still shows a positive relationship, suggesting that longer videos may receive higher interactions. The second-person perspective is significantly positively correlated with all engagement indicators, especially in terms of "like" and "comment", suggesting that TikTok videos with the second-person perspective lead to higher audience engagement. Video emotions show a negative relationship; that is, the stronger the positive emotions in the video, the lower the engagement is.

LTV (like-watch ratio) shows a negative relationship ($\beta = -0.073$, $p < .001$), indicating that more positive emotions are associated with a lower like rate; the negative relationship of CTV (comment-watch ratio) is also significant ($\beta = -0.054$, $p < .001$); STV (share-watch ratio) also shows a similar negative relationship ($\beta = -0.036$, $p < .001$); the second-person perspective is positively correlated with LTV, CTV, and STV ($\beta = 0.150$, 0.062, 0.034 respectively and all $p < .001$), indicating higher user engagement.

The above data indicate that videos released earlier, longer videos, videos with a second-person perspective, and videos with negative emotions can more effectively attract audiences.

4 DISCUSSION

TikTok possesses the most advanced algorithm system (Siles et al., 2024), which predicts users' interests by mining their personal information and continuously provides them with videos. Thus, users can focus on using and enjoying the application. This is exactly the same as Meng and Leung (2021) and others' research. TikTok can enhance its deep interaction with users by using methods such as portrait tracking and augmented reality effects to shape more imaginative images, hierarchical interest tag trees, user roles, etc. This article examines data from three sources: device and account settings (language, nation, device type, etc.); video

information (titles, subtitles, tags, etc.); and user involvement and participation activities (likes, shares, comments, etc.). These three factors are consistent with the main influencing factors of TikTok's recommendation system as mentioned by Cheng and Li (2024).

Likes are an important indicator for measuring the popularity and user engagement of short videos. They not only reflect users' recognition of the content but also affect the dissemination and recommendation mechanisms of the videos. Based on this, an attempt is made to analyze the factors influencing likes on TikTok.

Video type is one of the primary factors affecting likes. On TikTok, different types of videos attract different audience groups, and thus, their likes vary significantly. Comedy videos, due to their light-hearted and humorous nature, usually quickly attract the audience's attention and thus receive more likes (Sun, Zheng and Wu, 2023). Humorous content can touch the audience's emotions, evoke resonance, and prompt them to like.

From the general public's perspective, the core feature of short video platforms lies in quick consumption, and users' attention is relatively short. Therefore, shorter videos are more likely to attract audiences. However, experimental results show that longer videos are more likely to increase audience interaction and participation (Sun, Zheng and Wu, 2023). Video emotions are also important psychological factors affecting user likes. Videos featuring negative emotions are more likely to encourage user participation, according to experimental studies.

Second-person perspective videos can significantly increase user interaction rates, including likes, comments, and shares. It refers to videos shot from another angle or perspective. This way of shooting through the use of perspective differences can provide viewers with different viewing experiences and increase the novelty and interest of the content. It can make viewers feel as if they are in the scene, thereby enhancing the viewing experience. This immersion can increase users' attention and the possibility of likes.

It is worth noting that on TikTok, video tags actually exist as a genuine functional organizational principle, which helps users find, follow, and share information. To a certain extent, it can improve the credibility and dissemination degree of activity information and has an undeniable impact on likes (Herrman, 2019). Furthermore, Chen et al. (2021) noted that the more likes a video receives, the longer its title.

Finally, due to the rapid development of technology and the transformation of entertainment methods this year, TikTok's popularity has fluctuated. This has also affected the analysis of the factors influencing likes. Moreover, this study discusses the video types that dominate people's lives, but this does not cover all aspects. Future research can conduct in-depth exploration of the above-related variables to facilitate in-depth research on likes.

5 CONCLUSION

This study explores the main factors influencing the number of likes on Douyin. Firstly, comedy videos, due to their light-hearted and humorous nature, may typically grab the audience's attention right away and get a lot of likes. Secondly, contrary to the common perception of the public, the experimental results show that longer videos are more likely to increase the audience's interaction participation. The emotions conveyed by the videos can directly affect the audience's viewing experience and participation and are also important psychological factors for users to like. Videos with negative emotions are more likely to stimulate users' interaction sense. Finally, the second-person perspective, that is, videos shot from another angle or perspective, can provide an immersive experience, increase the interest and novelty of the content, and thereby increase users' participation and liking intention. Overall, when creators produce short videos, they should comprehensively consider these factors to enhance the attractiveness of the content and the interactivity of users. By optimizing these aspects, it is possible to effectively boost the quantity of likes on the videos and thereby promote their dissemination effect.

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