DADDYLAB: Application of Carl Hovland's Persuasion Model in Popular Science Short Video

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Abstract: In the new media era, popular science short video has become a new way to spread scientific knowledge, and its key and difficult point is to make people accept correct scientific information and make their attitude and behavior change in a specific direction. At present, the development of popular science short video faces many problems, such as the large number of accounts but the low quality; The content lacks scientific basis; Low update frequency, fan loss and other issues. Based on Hovland's persuasion model, this paper uses content analysis method and case study method to analyze the operation strategy of "DADDYLAB" TikTok, and puts forward the development strategy of popular science short video: increase update frequency; improve the quality of content; accurately locate the account characteristics and find the suitable development path.

1. Introduction

On January 6, 2020, TikTok released the 2019 TikTok Data Report, and its daily active users reached 400 million in January 2020.[1] Short video platform represented by TikTok has become one of the main channels for people to obtain information everyday. Short videos are characterized by diverse creative subjects, rich and creative content, and accurate push of big data. With the advent of the 5G era, video communication mode will become a major trend in the future.

Domestic scholars mainly pay attention to the development status and problems of popular science videos, and most of them focus on "popular science videos". For example, Yang Xiuguo and others discussed the promotion strategy from the aspects of management system, evaluation standard, content construction, personnel training and communication path.[2] Chen Baiyin and others tracked and collected the relevant information of 14 mainstream popular science TikTok accounts, and found that the number and dissemination trend of popular science TikTok accounts are generally on the rise, and UGC creators with informative and creativity contents are more favored by users.[3] Some scholars think about the design and creation of popular science video content,For example, Zhao Yuna investigated the present situation of popular science video design, compared and analyzed the characteristics of classic popular science videos at home and abroad, and put forward some suggestions on popular science video design, such as making series films, focusing on situational scenarios, combining science with art, etc.[4] Foreign popular science video researchers focus on the relationship between YouTube and science communication. Kousha has studied the scientific content published by scientists through video links,The video content can be divided into six categories: scientific demonstration, public communication, education, scholars' speeches, comedies about scientists and science, etc,The most popular category is communication videos about scientists' research to the public.[5] Sugimoto analyzed the popularity of TED lecture videos according to the qualifications and characteristics of speakers, and evaluated whether the relative popularity would have any indirect impact on academic citation.[6] Above all of these are lack of research on the content and audience persuasion of popular science short videos.

To sum up, the current research on popular science videos mainly focuses on the current situation and problems, content and plot design, communication effect, etc,The research angle is mostly from

the content dimension of popular science micro-videos, while the research from the user's perspective is less. This paper combines Hovland's theory of communication effect and case studies on the mechanism of audience receiving popular science information, which has certain practical significance.

2. Short Videos And Popular Science

Popular science information has always been an important category in information dissemination. In the era of traditional media, newspapers set up popular science pages and TV stations set up popular science columns. However, due to the high requirements of scientific information on audience knowledge and the lack of interest in traditional content forms, it is difficult to effectively disseminate popular science information. According to the 45th Statistical Report on Internet Development in China, at the end of March this year, the number of Internet users in China reached 904 million, of which only 19.6% had college degree or above.[7] Although the overall scale of netizens is huge, the educational level of a large number of users is not high. Nowadays, with the explosion of network information, which is full of false information and even rumors, the dissemination of popular science information becomes particularly important. With the visualization and interest of the content, short videos help to break down the knowledge barriers of users and improve the scientific literacy of the whole people.

Nowadays, there are a large number of popular science bloggers on the TikTok platform, including some official research institutions. Representative ones, such as @Institute of Physics, Chinese Academy of Sciences @China Science and Technology Museum @Popular Science China, etc. There are also many individual accounts favored by users, such as @DADDYLAB @clove doctor @Chai zhiknow, etc. However, through research, the author found that the development of most popular science accounts is in a bottleneck period, and there are some problems such as low update frequency and low quality of works, which lead to the decline of the number of fans and the stagnation of development. Among these typical popular science accounts, @DADDYLAB currently has 1540.3W fans, with an average praise of 10.1W. According to the statistics of Feigua, the number of fans of this account has increased to 51W in recent 30 days, which is still growing continuously. Why do other popular science short videos fall into the bottleneck period of development, and @DADDYLAB still has such tenacious vitality? This paper will combine Hovland's persuasion model to analyze the propagation characteristics of @DADDYLAB of TikTok account, and provide some suggestions for the development of popular science short videos.

3. Carl Hovland's Persuasion Model

On the research of attitude change, American psychologist Hovland has studied persuasion and attitude change and the influence of psychology on behavior, and put forward a classic persuasion model, which explains the effective mechanism of persuasion behavior in the process of communication from the perspective of communication. The model is divided into four related parts: the first part is stimulated by external factors, and Hovland thinks that any change in attitude is caused by the difference between a person's original attitude and some external views (or attitudes) which are different from this.[8] External factors are mainly influenced by the professionalism, reliability and popularity of information communicators. In the process of communication, there will also be gaps due to differences in communication methods and whether the content causes the fear of the recipients. Furthermore, different communication scenarios will also have an impact on the communication effect. The second part is the influence of the audience's personal factors,The audience is a reactive information activist, and there are many variables that will affect the attitude change. For example, the degree of belief in attitude and whether there is a preventive mechanism before receiving information. In addition, the differences in the audience's personality, such as self-esteem, intelligence and personality, will also have different influences. The third part is the influence of mediation process, which refers to the psychological mechanism of the target's attitude change process under the interaction of external persuasion stimulus and internal factors. In practice,

increasing or decreasing the amount of information received by users, transferring users' feelings or evaluations, changing their attitudes and establishing a matching mechanism, and finding more evidence to refute can all influence the audience's attitude change. The fourth part of the model is the result,There are two kinds of results, one is the change of attitude, that is, the success of persuasion, and the other is to resist the current persuasion, which includes three situations: information derogatory, information misinterpretation and cover-up rejection.

Using Hovland's persuasion model, combined with the characteristics of the short video of TikTok science popularization, we can better understand how the information spread by the communicator through the short video platform is better accepted by the audience, and even change the attitude. According to the research findings, the development strategies of short videos which are helpful to popular science are summarized.

4. The "DADDYLAB": Short Video Account Operation Strategy

4.1 Topic: Hot Spots and User Needs

Choosing topics and chasing hot spots has been one of the operation strategies of every TikTok account, and @DADDYLAB is no exception. During the outbreak of the COVID-19 epidemic in China, the contents of alcohol anti-virus, mask protection and thermometer selection were released one after another; Publish the content of breastfeeding publicity day on the day of 520; 618 online shopping festival released how to choose cosmetics; How to distinguish sulphur-bearing rice dumpling leaves during Dragon Boat Festival. These videos are closely following the hot spots, and they have won tens of thousands of praises. For popular science short videos, it is not enough to chase hot spots only, but also close to the actual needs of users. From @DADDYLAB of the ten most popular issues, the topic selection involves all aspects of food, clothing, housing and transportation, which are problems that users will encounter in daily life. In "Hovland's Persuasion Model", persuasion information belonging to external stimuli plays a key role in persuasion behavior. According to @DADDYLAB of fans' user portraits, 69.97% of them are female fans, and 59.5% of them are aged between 25 and 35,Most of the women at this stage have just started a family, and they are in urgent need of content closely related to their daily life,@DADDYLAB just meets this demand and greatly increases fans' love for accounts.

4.2 Content: the Combination of Plot and Popular Elements

In the traditional media environment, the content form of popular science information is a single boring text and picture form.[9] If the audience wants to understand popular science information through pictures and texts, they must have certain professional knowledge, which raises the threshold for effective dissemination of popular science information. Compared with graphic communication, short video lowers this threshold. The selectivity of audience information is embodied in three levels: selective exposure, selective understanding and selective memory. If the short popular science video only converts pictures and texts into videos, on the one hand, professional popular science knowledge lacks interest, on the other hand, there are many video recommendation mechanisms and various accounts for TikTok, so it is difficult for popular science accounts to break through. This requires that popular science short videos should pay more attention to the combination of innovation and fun. Most of the video content evaluated by @DADDYLAB starts with jokes, which can attract users in the first few seconds, which is also in line with the characteristics of short video platform. In addition to the opening of the story, the video also incorporates other popular elements of TikTok, such as popular music of TikTok, popular expression packs, and signature actions of other popular accounts. The integration of these elements greatly enhances the interest of the content and deepens the impression of users. However, if this lasts for a long time, it may also cause users' aesthetic fatigue. After combing the contents of @DADDYLAB, it is found that almost every content has new plots and popular elements.

4.3 Verification: the Combination of Experiments and Scientific Data

The content verified by scientific data is another major feature of @DADDYLAB. There are a large number of accounts on the TikTok platform to make knowledge popularization content, and the vast majority of account subjects are individuals,The nature of account subjects determines the audience's authoritative recognition of content. Hovland's persuasion model proves that the reliability of information transmitter is an important index to determine the attitude of users. Especially in the we-media era, false information and rumors frequently occur, which makes it difficult for the audience to distinguish the authenticity of information. Relying on the experimental and test data, @DADDYLAB has greatly improved the scientific nature of the content. For example, for the evaluation of cosmetics, @DADDYLAB found an authoritative testing organization to scientifically test the components of cosmetics, so as to verify which products are of better quality and which products are suitable for people. Judging from user comments, most users agree with this conclusion. In addition, through the experimental method, comparing the changes of different fruits in the refrigerator with those at normal temperature to prove which fruits are not suitable for the refrigerator, this method is more obedient. Through "both-sided argumentation", the user's antagonism or defense psychology can be reduced, and the user can be persuaded more easily.

4.4 Operation: the Combination of Personal Design and Fan Interaction

@DADDYLAB evaluates that by setting up "Dad Wei" as the host of the account, he enters the public's field of vision with the image of a dad who wants to buy a safe schoolbag for his daughter, which increases the affinity of the account. Most of the evaluation contents flaunt the safety, attracting a group of loyal fans. Through the image setting of faithful dad, the user's "emotional transfer" is accelerated, and fans are more willing to believe in the popular science content through "Dad Wei". Most TikTok accounts begin to attach importance to the interaction with fans, while @Dad Wei has started to connect offline with fans except through the interaction in comment area. Among more than 600 articles, the hottest one is "Remind everyone again, don't let children play with this toy, it's really too dangerous! The content of this issue is a sequel to the danger of a magnetic toy in popular science to children,Fans who leave messages in the comment area found out the fact that their children ate this toy by mistake,@DADDYLAB team, under the leadership of "Wei Dad", contacted fans offline, tracked and recorded the child's treatment process, and cooperated with the experiment to give users the hidden dangers of this magnetic toy. From the comment area, "this account is the most serious, professional and conscientious evaluation account I have ever seen" and "the video evaluated by Dad is the only one that can be forwarded to the elders",These comments have all received over 10,000 likes, indicating that fans have a high recognition of the content of this issue. The video records the treatment process of a child in hospital, which can deepen the audience's memory of the content by arousing the audience's fear, and finally result in attitude change. .

5. Conclusion

In March, 2019, Science Communication Bureau of Chinese Academy of Sciences, Science Popularization Department of Chinese Association for Science and Technology, China Science Newspaper, China Science and Technology Museum and ByteDance Company jointly launched a nationwide short video popularization campaign called "Douzhi Plan", calling on scientific research institutions and individuals to release short videos of popular science content through short video platform.[10] This plan aims to attract audiences to participate in scientific communication through the most popular communication methods at present, so as to enhance the scientific quality of the whole people. From the current development of popular science short videos, there are mainly the following problems: 1. The number of accounts is numerous and the quality development is uneven. 2.Most contents lack scientific basis and are subjective. 3.The update frequency is low, especially the institutional account number. 4.The account number lacks characteristics, which makes it

difficult to break through.

Through the research of @DADDYLAB, it is found that popular science short videos want to stand out on the platform of TikTok short videos with such fierce competition,The author puts forward the following suggestions: 1.Ensure the update frequency. The official TikTok number of Institute of Physics, Chinese Academy of Sciences @Institute of Physics, Chinese Academy of Sciences has 1.842 million fans at present, only two works have been updated in recent 30 days, and the number of fans has decreased by nearly one thousand. The increase in the number of fans of popular science short video accounts is a long-term accumulation process, and the premise is to ensure the frequency of content update. 2.Improve the content quality and ensure the authenticity and scientificity of the content. Judging from most popular science accounts at present, it is normal for the content to lack scientific basis, and the authenticity of popular science content directly affects the audience's recognition of accounts. @DADDYLAB improves the scientificalness of content and enhances users' trust through data detection by authoritative organizations. Scientific testing requires high testing cost, which is not suitable for all accounts. Ordinary popular science accounts can improve the reliability of content by explaining the source of content, scientific verification and experimental methods. 3.Accurately locate the account characteristics and find the development path that suits you. In @DADDYLAB, the faithful image of "Dad Wei" has attracted a large number of young mom fans, while @Chai know-all that relying on the cute image of the second dimension has attracted the attention of a large number of young male fans. It is an important strategy to solve the homogenization problem of popular science TikTok accounts to create characteristics and gain the target audience.

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