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Research on the Communication Status and Countermeasures of Short Videos of Agricultural Science

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Abstract

Agricultural science popularization short videos are a form of short video that mainly disseminates agricultural science and technology knowledge. With the continuous of the Internet, the demand of farmers to understand new agricultural production technology is increasing. Agricultural science and technology short videos, as the main force of new media to disse new agricultural science and technology, have become more and more important. This topic uses content analysis method to understand the audience's perception, identity and satisfaction with agricultural science popular short videos, and concludes that there are problems in the dissemination of agricultural science popularization short videos, such as the need to expand learning channels, the need to transform popularization content, the need to strengthen interactive feedback and the need to meet the needs of farmers. It is proposed to establish an agricultural science popularization knowledge sharing led by the government, led by creators and co-built by the audience, namely "four sharing", "four strengthening" and "four driving", in order to provide strategies for promoting the extensive dissemination and application of agricultural science popularization knowledge.

Keywords

Agricultural science popularization; Short video; Popularization of scientific and technological resources.

1. Introduction

China is an agricultural country. With the development of economy and society, China's agricultural development is also changing with passing day, and the new era has put forward higher requirements for the knowledge literacy of farmers. The results of the 13th China Science Literacy Survey show only 9.16% of rural residents have scientific literacy in 2023. China Internet Network Information Center. CNNIC released the 5th "Statistics Report on the Development of China's Internet". At this time, agricultural science and knowledge short videos, as the main force of new media to disseminate new agricultural science and technology, have effectively broken the phenomenon of rural information islands, and brought useful science popularization knowledge to farmers in different regions and with different resources[1]. However, for a long time, people's attention to agricultural science popularization short videos focuses on the quality and interest of their content, while there is insufficient research on the whole chain of short video production, dissemination, reception, and feedback. Agricultural scienceization short videos are different from traditional agricultural books and training courses. It affects the effect of agricultural knowledge dissemination from the production to the audience reception and feedback. How deeply explore its influencing factors and provide optimization strategies, make good use of short video to disseminate agricultural science popularization knowledge, and let agricultural science and technology knowledge go into the life of new farmers is urgently needed to study. Therefore, this study takes the agricultural

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science popularization video account on the TikTok platform as an example, the current situation of the dissemination of agricultural science popularization short videos from the perspective of agricultural science popularization short video creators, and proposes targeted suggestions, which provides strong for promoting agricultural modernization and the sustainable development of rural economy, and promoting the implementation of the rural revitalization strategy.

2. Management Characteristics of Agricultural Science Popularization Short Videos in Various Places

2.1. Science popularization has characteristics

Interviews found that the propaganda content in various places mainly focuses on the planting of local products and the promotion of new technologies, but there are differences in specific popularization content. For example, Jilin focuses on promoting high-yielding, efficient, and high-quality agricultural technologies, such as the coverage application of high-y corn and soybean varieties, and also focuses on the science popularization and promotion of black land protection technologies. By displaying advanced technologies such as the "Pear Tree", it enhances farmers' awareness and importance of black land protection. In addition to the science popularization of planting industry, Fujian Province also focuses on the science popular of aquaculture and tea industry.

2.2. Promotion activities are rich and diverse

There are also differences in the promotion efforts and effects of agricultural science popularization videos among provinces. Each province has stimulated the enthusiasm of farmers and creators to participate in the production of agricultural science popularization short videos through holding competitions and providing policy support and has achieved remarkable promotion effects. For example, Dafeng Village in Jinxian County, Anhui Province, has become a model village for the dissemination agricultural science popularization short videos. Under the leadership of Jinxian County Government and active contact with agricultural enterprises and academician teams, through the cooperation of government,, and scientific research institutions, it has not only introduced advanced agricultural technologies into Dafeng Village but also invited experts for offline guidance and disseminated these technologies and knowledge short video platforms. This cross-departmental collaboration and resource integration method has effectively improved the transmission efficiency and coverage of agricultural science popularization.

2.3. Policy is gradually strengthened

Through interviews, it was learned that under the leadership of the four provincial governments, illegal acts of agricultural science popularization short videos have been curbed a certain extent. In the past three years, Jiangsu Province has investigated and dealt with more than 500 illegal acts such as false science popularization and sale of pesticides under the guise of science popularization, of which about 10% involve agricultural science popularization short videos. However, overall, most provinces have carried out special supervision for agricultural science popularization short videos. Due to insufficient supervision, lack of cooperation from village committees, and other reasons, problems such as the sale pesticides under the guise of science popularization still exist.

2.4. Strengthening talent introduction

Interviews found that the educational level of the village cadre team in provinces and cities is gradually improving, and a talent team with junior college as the main body and undergraduate and postgraduate as the supplement has been formed, among which, educational level of the

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village committee in Jiangsu Province is higher. Fujian Province attaches great importance to talent introduction, and Fuzhou City's Minhou County has a number of policies to flexibly introduce high-level talents and master's and doctoral students, and train resident graduate students. Establish farmers' field schools, holding technical classes, training local talents and new professional farmers, and training more than 5,000 people in Minhou County's science and technology courtyard.

3. Agricultural Science Popularization Short Video Dissemination Issues

3.1. The loss of expert authority practice makes perfect

From the perspective of boundary work constructivism, strengthening the identity of agricultural experts aims to distinguish between teaching parties, highlight status differences to establish authority, enhance the credibility of content. However, in the pan-entertainment environment dominated by social media, new farmers have become the main body of agricultural science popularization short users, and the authority of agricultural experts has gradually dissipated. Creators who emphasize their own authority do not get better dissemination results. Therefore, the narrative perspective of common people will fully display agricultural knowledge through multi-angle interpretation [2].

Correspondingly, the fields and plots as the actual scenes of agricultural production provide the most direct observation and practice opportunities for learners, making the teaching more vivid and concrete. According to the social identity theory, people tend to classify themselves into specific social groups and define through the shared characteristics of the group. In such an environment as the fields and plots, both parties are more likely to establish identity, enhance trust, and have a impact on improving the dissemination effect.

3.2. Lack of interactive dissemination, lack of service consciousness

Strong interactivity is one of the advantages of new media over traditional. The emergence of new media has broken the shackles of traditional media in the process of dissemination, such as the lack of "transmission and reception" and insufficientactivity [2]. Replying to comments or highlighting them can not only satisfy users' exposure satisfaction psychology but also enrich or even sublimate the content of the video causing more audiences to resonate. However, through the observation of the comments on agricultural science popularization short videos, it is found that the interactive comments from the audience in comment section of TikTok short videos lack timely replies. Due to the weak interaction relationship between the new media media in the process of dissemination, the enthusiasm of the audience participate in the interaction is weakened, resulting in the lack of the chain of dissemination content through the audience interaction and dissemination again.

3.3. Serious content homogeneity, of appeal

Due to the short length of short videos and the simplicity of production, most agricultural science popularization short video creators can achieve a high update frequency. creators lack innovation in content creation and often repeat the release of the same or similar content, resulting in audience aesthetic fatigue and reducing the appeal and dissemination effect of information.peated release of the same or similar content leads to audience aesthetic fatigue, which not only wastes the time and energy of creators but also weakens the authority and influence of science popularization short videos. It is worth noting that some creators pursue commercial interests too much when making agricultural science popularization short videos, which is contrary to the original of disseminating agricultural science and technology knowledge to farmers [7].

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3.4. Limited technical capabilities and uneven operational levels

The operational levels of agricultural science popular Douyin accounts vary widely, and the overall performance of dissemination data is average. Some agricultural science popularization short videos have problems such as rough video production quality, update frequency, and insufficient dissemination. The simple presentation of "oral description illustrations" lacks focus and clear logical hierarchy, making it difficult to attract users' attention []. Some agricultural science popularization creators' short video works show significant convergence in creative style, presentation methods, and shooting techniques, and there is a clear trend of hom in the choice of content topics, which to some extent leads to the narrowness of the topics of agricultural science popularization short videos, the methods are single and can cause users to feel viewing fatigue, which is not conducive to the production and creation of high-quality original content. At the same time, agricultural science popularization Douin creators do not have a deep and skilled understanding of the platform's operation mechanism. They fail to make full use of the platform's recommendation algorithm and traffic mechanism, in limited exposure and dissemination of short videos. This lack of operation mechanism not only affects the dissemination effect of agricultural science popularization short videos but also restricts their survival development in the new media environment.

4. Strategies to Enhance the Dissemination Effect of Agricultural Science Popularization Short Videos

4.1. "Four Sharing" - a Shared Exchange Platform

4.1.1. Smart Sharing Platform: Promoting Community Resource Sharing

To build a "government, enterprise, education" trinity coordinated community, a smart sharing platform can be created. With the front-end input of government, enterprise, and educational resources in each village, and through the coordination and supervision the village committee, resource information is integrated into the platform database as the terminal. When rural governance faces resource shortages, the platform can quickly connect and allocate relevant resources, promoting community connectivity, alleviating resource insufficiency issues, and significantly reducing the cost of community resource training.

4.1.2. Comprehensive Governance Platform: Strengthen Multi-party Collaboration Efficiency

Establish a comprehensive governance platform covering "organizational manager supervision - service by participating entities - farmer feedback", to achieve the linkage of "government enterprise, education". Village organizations, agricultural enterprises, and agricultural science scholars and experts need to register basic information and update their capabilities and work time arrangements in a timely manner so that when collaboration is needed to solve agricultural problems, they can select the appropriate other participating entities for collaboration according to needs. This platform enhances the timeliness of information simplifies the linkage procedures, and improves the timeliness, professionalism, and efficiency of collaboration.

4.1.3. Demand Response Platform: Promoting Agricultural Talent Sharing

In the agricultural scienceization short video community platform, a detailed farmer information database has been established, which regularly updates the basic information of farmers, including family status, planting and breeding conditions, technical needs. By deeply analyzing this information, the platform matches service resources accurately, providing farmers with personalized agricultural science popularization knowledge and technical support. At the same time it encourages farmers who are technical experts and science

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popularization enthusiasts to share their experiences and become knowledge disseminators within the community.

The platform has designed a one help function, which allows farmers to directly connect with creators or experts in relevant fields by clicking, achieving immediate feedback and answers to problems. This function breaks the barriers of dissemination, allowing agricultural knowledge to quickly and accurately reach farmers, and also helps creators to more directly understand farmers' needs and create science popularization short videos that are closer the actual situation of farmers.

The agricultural science popularization short video community platform is not only a platform for knowledge dissemination but also a space for farmers to communicate and interact Farmers are encouraged to share their planting and breeding experience, successful cases, and challenges. Through community interaction and experience sharing, they can improve their agricultural production skills and scienceization level together, and provide support for the formulation of more accurate agricultural science popularization policies and services.

4.1.4. Comprehensive Feedback Platform: Multi-party Sharing

The platform ensures that all feedback content that has been initially screened and confirmed to be effective (under the premise of protecting user privacy) is open to the public Users can view other users' submitted feedback at any time, including problem descriptions, processing procedures, and results. The platform categorizes and tags feedback content in detail, as agricultural field, problem type, urgency, etc., and uses big data and artificial intelligence technology to intelligently recommend relevant feedback content, improving the efficiency of information acquisition This mechanism promotes the sharing and utilization of multi-party feedback and provides strong support for the continuous optimization of services and the improvement of user experience.

4.2. "Fourngthening" - Deepening the Construction of Science Popularization Content

4.2.1. Strengthening Operation Strategy and Implementing Precise Dissemination

ly, agricultural science popularization short video creators need to clarify the target positioning and audience groups of video content, and implement differentiated service strategies by deeply analyzing the characteristics and of the audience. This requires creators to develop targeted content topics and presentation methods based on the knowledge level, interest preferences, and other factors of different audience groups, that video content can precisely meet the needs of the audience and enhance the audience's participation and satisfaction. On the basis of clarifying the target and audience positioning, creators to build a systematic operation plan to ensure the systematicness, pertinence, and activity of the account. This includes developing detailed operation plans, combining the behavior habits preferences of farmers, and carrying out regular updates and content dissemination. At the same time, creators need to implement precise dissemination strategies, such as improving video quality and regular, to attract and retain users and expand the dissemination effect. Long-term and stable operation requires the continuous efforts and scientific management of professional teams to ensure the sustained influence and of agricultural science popularization short videos on the TikTok platform.

4.2.2. Strengthen content creation and expand the boundaries of topics

Agricult science popularization short video creators need to focus on producing high-quality content, enhancing the professionalism and scientificity of knowledge. By exploring and integrating professional knowledge, strictly controlling scientificity and accuracy of content, and considering the needs of the audience, output in-depth and easy-to-understand short videos [4]. At the same time, actual operations and real farm environments, break the stereotype

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of "experts don't go to the fields", and enhance the authenticity and proximity of the content. Through emotional to shorten the distance with the audience, establish user trust, and improve the effect of communication. Secondly, with the acceleration of the process of agricultural modernization, all science popularization education of agriculture has become a key link to promote rural revitalization and sustainable development. Creators should keep up with the latest progress of agricultural technology, multi-dimensional agricultural concepts such as "ecological friendliness, technological innovation, economic efficiency, and cultural heritage", capture and interpret technological hotspots, and expand the of agricultural science popularization topics. Translate scientific and technological achievements into language that the public can easily understand, and explain them in a simple and easy-to-understand way a series of systematic videos, so that non-professional audiences can also feel the charm of science. Use hot topic tags to improve content exposure, attract public attention, promote the widespread dissemination of agricultural science popularization education.

4.2.3. Strengthen multi-party collaboration and enhance interactive awareness

During the creative process, creators can both parties' creative gap through government-level empowerment, speak in the form of official media accounts, and guide the cultural value of "agriculture, rural areas, farmers" short videos in the form of opinion leaders. Not only improve the self-worth recognition of "new farmers", enhance their sense of subjective responsibility, but also the creative passion, learn more creative skills [5]. Today, short video platforms represented by TikTok and Kuaishou have strong social media attributes, and they achieved timely and two-way communication through Internet communication technology. Communicators need to enhance their interactive awareness, use the platform to release videos, and analyze user reading preferences through, comments, and forwards. Grasp and explore the differences and personalized needs of users, and create content that is more in line with their tastes [6]. Note strengthen the interaction with the audience, set more interactive elements to guide the audience to participate in topic discussions, sort the questions that the audience is interested in according to heat, set up a column to answer questions, and create a healthy interactive atmosphere in the comment area of the short video, and enhance user stickiness by providing high services. Form a scale cluster interactive.

4.2.4. Strengthen the construction of the character and create a distinct IP

In terms of content planning and production creators can learn from the experience and skills of professional science popularization media, improve the basic elements such as picture quality and color, and maintain the unity of style, difference of packaging, and the fit of background music. Through the creation of personalized and popular language narrative style, create a personal image IP represented by the character or a-quality content column IP represented by high-quality content. Communicate and interact with users in a "friend" relationship, and cultivate the audience's interest and love for agricultural. In addition, creators can also use platform resources to organize online and offline activities, such as agricultural knowledge lectures, field investigations, etc., to enhance community cohesion and. Through the collaborative efforts of all parties, jointly promote the widespread dissemination and in-depth development of agricultural science popularization education.

4.3. "Four-Drive" – Activating the Vitality of Participating Subjects

4.3.1. Policy Learning Drive: Cultivating Subject Consciousness and Responsibility

Establishing and strengthening subject consciousness is key to enhancing the activity of participating subjects on the agricultural science popular community platform. Farmers should cultivate their sense of responsibility, actively communicate with village committee staff and agricultural enterprise staff, participate actively in various policy learning activities, and gain an-depth understanding of the state's policies and guidelines on agricultural development, new

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progress in agricultural technology, and market dynamics. Responding to the village committee's call and cooperating online and offline propaganda activities organized by the village committee or agricultural enterprises can not only obtain the latest information in a timely manner but also relieve the pressure of participating subjects in communication and enhance trust and support for grassroots governance.

4.3.2. Participation Will Drive: Expanding the Agricultural Science Popularization Service Team

To further enhance activity of the agricultural science popularization community platform, farmers should be encouraged to actively register and join the learning groups within the mechanism and participate actively in agricultural science popularization service activities. By setting up a points system, points can be accumulated according to the farmers' activity on the platform (such as posting questions, answering questions, sharing, etc.), and farmers with more total points can have the opportunity to choose high-quality participating subjects to meet their own needs preferentially, as well as other forms of and recognition. This positive incentive mechanism can stimulate farmers' enthusiasm for participation and attract more farmers to join the agricultural science popularization service team, jointly promoting the dissemination and of agricultural science popularization knowledge.

4.3.3. Information Sharing Drive: Creating a Harmonious and Mutual Community Atmosphere

On community circles, WeChat public, and other new media platforms, farmers should share their production experience, technical problems, and successful cases in real time. This not only helps farmers learn from each and draw on each other's experience but also promotes the widespread dissemination of agricultural science popularization knowledge. At the same time, actively participating in interactive activities on the learning, such as knowledge competitions and technical challenges, can form a strong discussion atmosphere and a proactive participation trend. Through real-time information sharing and active participation in interactive activities, communication and contact between farmers will be more closely, which helps to create a harmonious and mutual collective atmosphere and provides a good environment for the dissemination and application of agricultural popularization knowledge [7].

4.3.4. Pairing Support Drive: Playing the Role of Teaching and Guidance

To rapidly enhance the skills level of new farmers or those with weak technical skills, a 1V1 pairing support mechanism should be established. Experienced farmers are paired with those with weak technical, guiding them through online instructions and offline practices to quickly master production skills and solve technical problems. This teaching and guidance role not only improves the overall production level but also a good atmosphere of mutual assistance and a demonstration effect. At the same time, the pairing support mechanism can also promote exchanges and cooperation among farmers, enhancing the cohesion andripetal force of the village collective. Through mutual help and common progress, it promotes the in-depth dissemination and extensive application of agricultural science popularization knowledge.

5. Conclusion

This article analyzes the current situation of the dissemination of agricultural science popularization short videos, deeply analyzes the problems of the current agricultural science popularization short video creators' of authority, lack of feedback, single content, and poor technical level. In response to these challenges, this article proposes optimization strategies of "Four Sharing", "Fourngthening", and "Four Driving". By building intelligent sharing platforms, comprehensive governance platforms, demand response platforms, and comprehensive feedback platforms, the effective integration and sharing of are realized. At the same time,

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strengthening operation strategies, content creation, diversified collaboration, and persona construction, deepening the construction of science popularization content, and the dissemination effect. In addition, through policy learning drive, participation willingness drive, information sharing drive, and pairing support drive, the vitality of participating subjects is activated, the extensive dissemination and in-depth application of agricultural science popularization knowledge are promoted.

The dissemination effect of agricultural science popularization short videos is affected by various factors and needs to be further deeply studied. For example, the acceptance degree and preference of different regions and different audience groups for agricultural science popularization short videos can be explored, well as the impact of the continuous development of new media technology on the dissemination mode of agricultural science popularization short videos. At the same time, we can also pay to the actual effectiveness of agricultural science popularization short videos in promoting rural revitalization, improving farmers' scientific literacy, etc., to provide more comprehensive theoretical support and practical for the development of agricultural science popularization.

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