

## A Live-Streaming Perspective on Communication Strategies for Agricultural Popular Science Journals: A Case Study of *Rural New Technology Magazine* (Postprint)

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### Abstract

In the media convergence environment, Rural New Technology magazine, building upon its website, WeChat public account, and SMS platform, emphasizes user interaction, continuously improves the “Rural Mall” on its WeChat public platform, joins new media platforms such as Toutiao, constructs a three-dimensional communication platform, integrates short videos and live streaming into science popularization activities, and creates an interactive science communication platform. This article explores the application status and existing problems of live streaming in the media convergence communication of Rural New Technology magazine, and proposes communication strategies for science popularization journals from the perspective of live streaming.

### Full Text

#### Research on Communication Strategies of Agricultural Science Popularization Journals from the Perspective of Live Streaming: A Case Study of *Rural New Technology Magazine*

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**Abstract:** In the integrated media environment, *Rural New Technology* magazine has built a three-dimensional communication platform by establishing a website, WeChat public account, and SMS platform while emphasizing user interaction, continuously improving its “Rural Mall” on WeChat, joining new media platforms such as Toutiao, and integrating short videos and live streaming

into science popularization activities to create an interactive science communication platform. This paper examines the application and existing problems of live streaming in the integrated media communication of *Rural New Technology* magazine and proposes communication strategies for science popularization journals from the perspective of live streaming.

**Keywords:** live streaming; science popularization journals; live streaming platforms; science popularization content; communication strategies

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In traditional models, network live streaming was generally an information dissemination format employed by television media when covering major news events and important sports competitions. Currently, live streaming is prevalent, and ordinary people have become broadcasters, subverting conventional perceptions of live broadcasting. The COVID-19 pandemic, in particular, has led to the widespread application of live streaming across various industries. In agriculture, live streaming sales have enabled numerous agricultural products to overcome traditional marketing barriers, even reaching households nationwide from remote mountainous areas and accelerating agricultural monetization. However, for agricultural science popularization live streaming, relevant departments and institutions have conducted relatively limited exploration. Compared with traditional science popularization methods, science popularization live streaming is obviously much more vivid and engaging. Yet due to the short development history of network live streaming, the content and quality of agricultural knowledge disseminated are uneven, with many creators producing and releasing vulgar or spoof videos to attract attention, which is detrimental to the dissemination and promotion of modern agricultural knowledge and production technologies. Therefore, studying the communication models of agricultural science popularization live streaming is of extremely important significance for improving the interactive capabilities of different communication media, enhancing the dissemination of agricultural science knowledge, promoting agricultural product marketing, and supporting rural revitalization.

## 1. Communication Characteristics of Science Popularization Live Streaming

In the process of science popularization live streaming, platforms and anchors are the main communication elements that entirely rely on the internet as the

medium. Science popularization live streaming provides audiences with increasingly personalized content, enabling effective dissemination of live content. Utilizing the internet, anchors can disseminate information to audiences anytime and anywhere through live streaming platforms while engaging in real-time communication and interaction. Agricultural science popularization live streaming serves as a “new agricultural tool” for rural revitalization, playing an important role in the modernization of agriculture and rural areas. As an emerging communication model, science popularization live streaming possesses characteristics of immediacy, interactivity, and practicality.

### **1.1 Immediacy**

Immediacy is the most prominent feature of science popularization live streaming, encompassing both the immediacy of information dissemination and the immediacy of audience self-selection. When broadcasters transmit information, audiences can immediately receive corresponding information at their terminals, a process that can be realized in an instant. Science popularization live streaming enables broadcasters and audiences to overcome spatial barriers; regardless of the distance between them, as long as the network is smooth, live content can be transmitted immediately. The internet is a communication medium where information can be instantly generated, instantly disseminated, interact in real-time, and be highly shared.

### **1.2 Interactivity**

The real-time communication between broadcasters and audiences when transmitting information reflects the interactivity of science popularization live streaming. Through bullet comments, broadcasters and audiences can achieve real-time two-way communication, which traditional media cannot accomplish, as traditional media requires a certain amount of time to wait for audience feedback. Through real-time interaction, broadcasters can adjust live content to achieve optimal information transmission effects. Currently, science popularization live streaming is gradually shifting toward two-way communication between broadcasters and audiences. Taking the “Youbo” live streaming platform as an example, during the live broadcast, audiences can communicate with anchors in real-time through bullet comments, likes, and messages, diversely expressing personal demands and emotions, and can even reward anchors if they approve of them.

### **1.3 Practicality**

Science popularization live streaming disseminates knowledge and information in the field of science and technology through live streaming platforms, making it easy for audiences to understand and accept, and enabling them to gain something from the live broadcast process—that is, emphasizing practicality. Therefore, during the live broadcast, anchors should not explain scientific knowledge and achievements through experimental data and professional terminology but

should transform experimental data and professional terminology into language that audiences can easily understand. The design of live content should focus on practicality to attract audiences.

## 2. Application of Live Streaming in Science Popularization Communication of *Rural New Technology Magazine*

The target of science popularization communication is the general public. *Rural New Technology* magazine, hosted by the Guangxi Institute of Science and Technology Information, has always adhered to the purpose of “disseminating scientific knowledge and serving the development of agriculture, rural areas, and farmers,” providing readers with the latest and most practical agricultural production technologies to help farmers increase production and income. For over 30 years, it has played an important role in agricultural production, increasing farmers’ income, and supporting poverty alleviation and rural revitalization. The magazine has won honors such as the “China Government Publishing Award Journal Nomination Award” and “China’s Top 100 Journals,” and is a key recommended journal for national rural book houses, enjoying certain popularity and influence in Guangxi and even nationwide. As a mass media outlet with a large number of readers nationwide, *Rural New Technology* magazine has a broad mass foundation for fully utilizing its platform resources to build and promote agricultural science popularization communication platforms targeted at different audiences.

*Rural New Technology* closely focuses on the national strategic deployment of promoting agriculture, rural areas, and farmers, responding to the call of “mass entrepreneurship and innovation” and accelerating the structural reform of agricultural supply-side industries. It is committed to building a high-quality agricultural science popularization journal, actively promoting the integrated development of traditional print media and emerging media, exploring new journal operation models and new market-oriented business methods, and providing readers with excellent technical works and cultural products with rich content, practical technologies, and strong readability. This has had a positive impact on improving farmers’ scientific literacy, promoting agricultural production increases, helping farmers increase income through entrepreneurship, and advancing rural development, with its brand effect continuously expanding and comprehensive benefits continuously improving. In the era when the internet has deeply penetrated public life, *Rural New Technology* has continuously cultivated its science popularization communication field in recent years, accelerated its transformation pace, and explored diversified communication platforms more suitable for readers and audiences. It has innovatively built a three-dimensional science popularization communication model of “website + WeChat public account + SMS platform + Toutiao + short videos + live streaming,” achieving one-time production and multiple dissemination of content through process reengineering and resource integration optimization, extending its influence from traditional fields to new media fields and achieving phased results in science popularization

communication platform construction.

In 2020, *Rural New Technology* integrated live streaming into agricultural science popularization communication, forming a three-dimensional agricultural science popularization communication model. The editorial team collected feedback from readers and audiences on agricultural science popularization live streaming, analyzed the applicable communication content, audiences, and effects of different media, and deeply explored the sustainable development path of agricultural science popularization communication under multimedia integration from the perspectives of systematic science popularization services, diversified operation methods, and science popularization team building. It opened an agricultural science popularization live streaming window on the live streaming platform, selected knowledge points or science popularization events of audience interest for live broadcasting, mobilized the inherent fun and interactive genes of network live streaming, made profound planting and breeding technologies more down-to-earth and humane, and effectively improved the effectiveness of agricultural science popularization communication.

Since the launch of the *Rural New Technology* live streaming room, it has conducted live broadcasts in various cities and counties to report the latest agricultural technology knowledge, winning widespread social acclaim. For example, on August 3, 2020, *Rural New Technology* set up its live streaming room at the Santai Fruit Planting Base in Gandong Village, Bala Yao Autonomous Township, Tian' e County, Guangxi, inviting authoritative planting experts to appear on camera and popularize the planting technology of Longtan Pearl Plums in Tian' e County. The live broadcast featured rich and diverse content forms, extending the journal' s service chain. On September 3, *Rural New Technology* went to Lingdang Village, Liupai Town, Tian' e County, Guangxi, to uncover the wealth secrets of "Lingdang Sannong" (highland passion fruit, highland kiwi fruit, and highland vegetables), while inviting passion fruit planting experts to conduct live broadcasts on highland passion fruit planting and management techniques. The experts provided "à la carte" answers to questions encountered by netizens during the passion fruit planting process. On the day of the live broadcast, the *Rural New Technology* live streaming room attracted thousands of fans and received numerous praises from netizens, demonstrating the brand charm of "Lingdang Sannong" from multiple dimensions.

On November 27, *Rural New Technology* was invited to Chongqing to broadcast the 18th China International Agricultural Products Fair, leading the live streaming room audience to experience an unprecedented agricultural event. Through the camera, it presented not only the colorful event site and a dazzling array of characteristic agricultural products but also intuitively showcased China' s agricultural achievements and the latest agricultural technologies to the audience. The live streaming promotion model received full recognition from the organizers, enhanced the journal' s media influence, and established the brand image of agricultural science popularization journals.

### 3. Main Problems in Science Popularization Live Streaming

Compared with developing new media, science popularization journals place greater emphasis on journal operation models that improve article quality and conduct science popularization activities to enhance journal brand image. Organizing public welfare activities is the social responsibility of journals and a crucial factor in building journal brand influence. Impacted by new media, traditional media operations have faced difficulties, forcing traditional media to move closer to new media and seek innovative paths for integrated development. While fully exploring existing journal resources to create high-quality journal content, traditional media actively broaden communication channels, yet few science popularization journals attach importance to the important role of live streaming in disseminating scientific and technological information, enhancing journal communication power, and building journal brands, and make active explorations and attempts. Due to insufficient awareness, the funds invested by the sponsors and competent authorities of science popularization journals in new media, especially science popularization live streaming, are seriously insufficient, increasing the difficulty for traditional journals to conduct network live broadcasting.

#### 3.1 Insufficient Awareness and Funding

Science popularization journals should fully leverage new media, especially live streaming, in fulfilling social responsibilities, interacting with audiences, and building journal brands. While building three-dimensional communication platforms using official websites, WeChat public accounts, and short videos, science popularization journals should integrate live streaming into science popularization activities to create interactive science popularization communication platforms. Traditional journals' launch of live streaming business should attract the attention of competent and sponsoring units, with careful top-level design and sufficient support in terms of human, financial, and material resources. While ensuring the effectiveness of science popularization live streaming, *Rural New Technology* has always focused on the main line of agriculture, rural areas, and farmers, adhering to the purpose of "disseminating scientific knowledge and serving the development of agriculture, rural areas, and farmers," continuously enriching the service content of network live streaming platforms, and truly building agricultural science popularization journals into an interactive platform serving agriculture, rural areas, and farmers.

#### 3.2 Incomplete Live Platform Functionality

During science popularization live streaming, audiences do not need high-end equipment and terminals, but the hardware requirements for the broadcasting side are relatively high, such as audio and video collection equipment, smartphones, and networks. Although ordinary equipment can complete a science popularization live streaming activity, achieving ideal live streaming effects is

inseparable from good hardware equipment. When *Rural New Technology* was invited to Chongqing to broadcast the 18th China International Agricultural Products Fair, the live streaming team made adequate preparations and conducted network speed testing on site, but still experienced lagging issues during the live broadcast using the “Youbo” platform, failing to achieve the expected live streaming effect. Meanwhile, some audiences using Android phones could not watch directly in the “Youbo” WeChat mini-program and had to download the “Youbo” App to watch, seriously affecting the audience experience.

### 3.3 Monotonous Live Streaming Content

Since the launch of the *Rural New Technology* live streaming room, it has conducted in-depth live broadcasts in various cities and counties to report the latest agricultural technology knowledge, winning widespread social acclaim. For example, during the live broadcast in Tian’ e County, Guangxi, the magazine invited experts from the Guangxi Academy of Agricultural Sciences to popularize passion fruit planting technology on site. The experts detailed practical knowledge on planting environment requirements, land reclamation and trellising, digging and planting, pruning and shaping, fertilization, and pest control for highland passion fruit in Lingdang Village, and provided “à la carte” answers to questions encountered by netizens during the passion fruit planting process. The experts’ detailed, patient, witty, and humorous answers were deeply loved by netizens, who praised the experts. However, in terms of live streaming content, the focus is on planting technology, with less involvement in breeding technology, resulting in relatively monotonous content that is not conducive to increasing the number of fans in the live streaming room.

### 3.4 Inadequate Live Streaming Team Construction

Members of the science popularization live streaming team are mostly journal editors with solid writing skills and rich experience in layout design but rarely involved in new media, especially network live streaming. Therefore, the live streaming team composed of journal editors faces new challenges in conducting live streaming work. The live streaming team needs to possess strong technical development capabilities, keen information capture abilities, planning capabilities that can attract a large number of fans, as well as on-site control ability, adaptability, and language expression ability, which place high demands on editors’ professional knowledge reserves. Only by integrating and complementing the advantages of traditional editors and new media professionals can media integration development be achieved, allowing professionals to do professional work.

## 4. Communication Strategies for Science Popularization Journals from the Live Streaming Perspective

### 4.1 Strengthen Top-Level Design and Secure More Resource Support

Science popularization journals should fully leverage new media, especially live streaming, in fulfilling social responsibilities, interacting with audiences, and building journal brands. While building three-dimensional communication platforms using official websites, WeChat public accounts, and short videos, science popularization journals should integrate live streaming into science popularization activities to create interactive science popularization communication platforms. Traditional journals' launch of live streaming business should attract the attention of competent and sponsoring units, with careful top-level design and sufficient support in terms of human, financial, and material resources. While ensuring the effectiveness of science popularization live streaming, *Rural New Technology* has always focused on the main line of agriculture, rural areas, and farmers, adhering to the purpose of "disseminating scientific knowledge and serving the development of agriculture, rural areas, and farmers," continuously enriching the service content of network live streaming platforms, and truly building agricultural science popularization journals into an interactive platform serving agriculture, rural areas, and farmers.

### 4.2 Grasp Science Popularization Live Streaming Needs and Enrich Content

The development of new media has brought great challenges to traditional print media, and readers have put forward higher requirements for traditional print media. Therefore, the development of print media under the new media background largely depends on journal content. *Rural New Technology* is a nationally renowned high-quality journal that has won many national honors. To maintain high-level and high-quality publication, it must strengthen its quality consciousness, keep pace with the times, and continuously innovate communication models, trying various new media forms such as live streaming. When conducting agricultural technology live streaming, *Rural New Technology* magazine fully explores user needs, focusing on important national decisions and deployments regarding agriculture, rural areas, and farmers, major hot issues, and major activities. It organizes carefully, plans actively, interprets national policies to strengthen agriculture and benefit farmers from different perspectives, collects and reports advanced agricultural technologies and innovative achievements at home and abroad, disseminates scientific knowledge and concepts of becoming wealthy through technology, and fully considers and demonstrates live streaming content, controlling the topic selection to ensure the content quality of the magazine and maintain its brand image, achieving good communication results.

### 4.3 Choose Appropriate Live Streaming Platforms

Currently, there are numerous live streaming platforms, but few are high-quality. Moreover, each platform has different business scopes and user structures, with obvious advantages and disadvantages. Therefore, when choosing a live streaming platform, selection should be targeted based on live streaming content and user needs. Regardless of which live streaming platform is chosen, it is essential to be clear about the purpose of live streaming, what effects to achieve, and to fully understand the basic content of the platform, including daily active users, user hierarchy structure, operation model, service level, entry process, entry conditions/qualifications, charging standards, traffic support policies, and live streaming functions. At the same time, choose live streaming platforms that can be effectively associated with commonly used social software, making it easier for audiences to watch live streaming, which helps attract and retain audiences. For example, the live streaming platform chosen by *Rural New Technology* can be effectively associated with the WeChat platform, allowing users to watch live streaming simply by clicking the link shared by the broadcaster without downloading an App on their mobile phones. Live streaming is short-term information dissemination conducted on site, and due to factors such as time, venue, and network, some audiences cannot watch in time. Therefore, live streaming platforms that allow playback should be selected, which is beneficial both for live streaming team review and for audiences to review recorded content, allowing science popularization live streaming content to be more widely disseminated.

### 4.4 Strengthen Live Streaming Team Construction

In modern society with highly developed internet technology, information dissemination methods have undergone significant changes. Science popularization live streaming teams should keep pace with the times, master and utilize new media technologies such as live streaming to promote journals and enhance journal brand image. Science popularization live streaming teams must continuously improve their own qualities and skills, especially focusing on oral expression and hosting abilities to adapt to the new requirements of science popularization live streaming development. Against the backdrop of implementing the rural revitalization strategy, science popularization live streaming teams should explore and fully utilize network live streaming platforms, grasp the pulse of agriculture, rural areas, and farmers, broadcast advanced agricultural technologies and innovative achievements at home and abroad, disseminate scientific knowledge and concepts of becoming wealthy through technology, improve farmers' scientific quality, and promote agricultural development. Currently, China's agriculture is undergoing profound changes, with quality agriculture becoming a strong demand, new agricultural planting and service entities rising, and "new farmers" growing. Their demand for agricultural knowledge such as planting technology, plant protection technology, processing technology, and complete solutions is becoming increasingly strong. Agricultural science popularization journals mainly

target agricultural workers and farmers, serving as effective carriers for popularizing agricultural science and technology knowledge and helping farmers learn and apply technology. They meet the needs of “new farmers,” but since “new farmers” have grown up in the internet environment, the single communication model of traditional agricultural science popularization journals can no longer adapt to the times or satisfy the needs of “new farmers.” Therefore, agricultural science popularization journals should keep pace with the times, leverage new media technologies such as network live streaming, fully demonstrate journal characteristics, enhance journal communication power, build a comprehensive knowledge service platform serving “new farmers,” and contribute to rural revitalization construction.

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