

Construction of an Evaluation System for Mass Media Science and Technology Communication Capacity: Postprint

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Abstract

Science and technology constitute the primary productive force. With the continuous development of the economy, science and technology are also constantly advancing with the times. As an important means of communication, mass media plays a very significant role in the dissemination of science and technology. This paper briefly analyzes the current stage of science and technology communication through mass media, and conducts a certain degree of estimation and evaluation of the science and technology communication capacity of mass media. Based on comprehensive factors, it attempts to establish a relevant evaluation system for the science and technology communication capacity of mass media, to comprehensively analyze the science communication capacity of mass media, for relevant personnel to discuss and analyze.

Full Text

Preamble

Research, Outlook and Analysis: Construction of an Evaluation System for Mass Media Science Communication Capacity

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Abstract: Science and technology constitute primary productive forces. With continuous economic development, science and technology are also advancing with the times. As an important communication tool, mass media plays a significant role in the dissemination of science and technology. This paper briefly analyzes the current stage of mass media science communication, provides a preliminary assessment and evaluation of mass media's science communication capacity, and attempts to establish a relevant evaluation system for mass media

science communication capacity based on comprehensive factors, offering a thorough analysis of mass media's science communication capacity for discussion and analysis by relevant stakeholders.

Keywords: mass media; science communication; evaluation system

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While in-depth research on indicators for technology and related content reporting remains lacking, mass media—as a communication medium encompassing television, radio, newspapers, and the internet—maintains close attention to development conditions and trends across various industries. This paper focuses on the science communication capacity of mass media. In this domain, mass media remains a crucial bridge connecting the public with the scientific community, enabling people to stay informed about scientific and technological advancements through mass media dissemination. Simultaneously, mass media spreads positive scientific attitudes, spirits, and literacy worldwide, exerting a beneficial influence on public behavior and society.

1. Development of Mass Media Science Communication Capacity

The history of science communication is as ancient as that of science and technology itself. However, comparatively speaking, the starting point and development of science communication lag behind those of science and technology. Nevertheless, early research literature already contained content related to science communication. In contemporary development, the progress and current state of science communication have garnered widespread attention across various industries. Mass media plays an indispensable role in society. The term “media” expands to “communication medium,” so mass media can also be called mass medium. Its purpose is to expand communication channels, as evidenced by the emergence of newspapers, television, and the internet. It also aims to accelerate communication speed—traditional methods such as carrier pigeons and horseback messengers introduced considerable delays in information transmission. Furthermore, it extends the geographical reach of information dissemination; in earlier societies, information propagation to remote areas was often constrained due to limited external connections, causing some information to be suppressed during transmission.

2. Current Status of Mass Media Science Communication Capacity

In existing research, society has yet to conduct in-depth studies on micro-level media monitoring technologies and indicators for technology-related content re-

porting. Some findings have identified problems in China's overall mass media industry regarding science communication: lack of professional equipment, insufficient professional competence among staff, limited space allocated to science content, high job mobility, and rough handover processes. These issues primarily arise because current mass media companies focus solely on immediate profits without a sound long-term development vision. Some personnel maintain an impetuous mindset, unable to concentrate on properly executing mass media science communication. Due to various social factors, these industry development problems necessitate the establishment of a corresponding evaluation system for regulation, thereby promoting the healthy and scientific development of the entire industry.

2.1 Untimely Content Updates and Unreasonable Media Structure

Mass media has existed and developed for a considerable period, yet the knowledge content it disseminates remains relatively dry. Readers often merely skim through articles, achieving only superficial comprehension. Although numerous popular science books and resources exist today, their content is outdated and lacks specificity, innovation, and artistry—qualities that could enhance the effectiveness of knowledge dissemination. As societal structures evolve, people's pursuit of high technology continues to deepen, but mass media has failed to timely adjust its communication content to respond to these trends.

Contemporary audiences generally seek innovative, unique, and sophisticated multimedia content. Regarding communication structure, the adoption of singular communication methods by media leads to unsatisfactory dissemination outcomes. In current science and technology communication, content frequently employs dry, incomprehensible professional terminology and remains unilaterally focused on theoretical knowledge transmission. This communication approach leaves readers with vague understanding of conceptual meanings, often remembering only the professional vocabulary itself [2].

2.2 Unrigorous Communication Process, Causing Public Resistance

The continuous development of society has led people into a fast-paced lifestyle, fostering a mentality prone to seeking quick success and instant benefits. When this phenomenon manifests in mass media, it becomes amplified, causing severe public resistance. In daily life, people have extensive exposure to mass media and place higher trust in science and technology reporting compared to other types of coverage. Consequently, erroneous reports in science and technology significantly diminish public perception of mass media and may even impact the development of the science and technology industry to some extent. Particularly in areas of public concern such as healthy and green food, false reports can easily trigger panic. Even after clarifications are issued, skepticism often persists. This phenomenon not only impacts the mass media industry but may also thrust relevant food inspection agencies into the spotlight, creating extremely negative social consequences.

As society develops, media becomes increasingly pervasive in our lives, and the responsibilities borne by mass media grow heavier. However, some media outlets have abandoned their responsibilities in this context, sacrificing the overall reputation of mass media for profit. Numerous television programs have launched health and wellness shows that exploit healthcare knowledge to vigorously promote flashy but insubstantial products. These behaviors significantly reduce public trust in media.

2.3 Unhealthy Tendencies in the Scientific Community and Lack of Professional Talent in Mass Media

Currently, China's comprehensive investment in science and technology still exhibits certain gaps. The scientific research industry is a highly respected field, with most research outcomes aimed at better human development. In the mass media sector, the low requirements for professional talent selection by relevant media organizations lead to disorganized content arrangement in reported articles. Various specialized personnel are in high demand, and vertical and horizontal connections form a professional team, yet China has not yet established a professional talent training system. As the conveyor of societal information, media needs to possess strong learning capabilities.

In the scientific research community, the evaluation of relevant personnel should not be limited to academic reports and professional titles. Truly promoting science communication should foster a positive and upward atmosphere in the industry [4].

3. Constructing an Evaluation System for Mass Media Science Communication Capacity

Mass media is one of the primary means of disseminating science and technology, yet its inherent problems affect public acceptance. To change this situation and promote the healthy development of the entire industry, establishing a comprehensive evaluation mechanism is highly significant. The existence of an evaluation system can facilitate certain management and control over mass media content. A reasonable evaluation system can reduce errors and ensure that mass media managers can make sound decisions, which is of great importance to the entire industry.

Below, the author offers several recommendations regarding the direction of changes for establishing an evaluation system in this industry. Building a comprehensive evaluation system requires all components—each is indispensable, interconnected, and mutually influential. As science and technology continue to develop and the social environment constantly changes, the development paths of both become increasingly complex. Simply and singularly altering partial indicators cannot significantly impact the construction of the evaluation system. Establishing an evaluation system is akin to creating a small natural ecosystem;

when one link in the ecological chain is affected, it causes severe impacts on other links—the same applies to the evaluation system.

3.1 Building the Evaluation System by Utilizing Resources and Optimizing Content and Structure

When conducting science communication, mass media can achieve broader dissemination through auxiliary resources. For instance, securing appropriate time slots for science and technology programs in radio and television institutions, or obtaining prominent placement for science content in print media such as newspapers and journals. Conducting general statistics on viewership ratings for radio and television science programs, analyzing the proportion of audience share and discussion activity through these communication methods, and surveying public opinions on the innovation, artistic expression of science content, and suggestions for improvement. This model construction can effectively reflect mass media's capacity for science and technology communication, enabling intuitive evaluation and improvement of its capabilities [3].

3.2 Evaluating Communication Quality and Effectiveness

To construct an evaluation system for mass media's science communication capacity, mass media can assess the effectiveness of its communication through quality and impact metrics. The proportion of the general public receiving science education, as recipients of science information, indirectly highlights mass media's communication capacity. The frequency with which the general public applies science and technology knowledge and practical operations also constitutes an important evaluation indicator.

Due to the diverse communication methods employed by mass media, management faces corresponding challenges. The author recommends that relevant institutions establish different evaluation system mechanisms based on different communication methods. Various media organizations in society should form specialized research groups to conduct comprehensive understanding of scientific achievements before reporting and disseminating relevant science and technology. Information, consultation, and evaluation at every stage must be completely integrated to provide excellent outcomes for the public.

3.3 Enhancing Professional Standards Across All Sectors

Science communication is a process in which all working stages must be closely connected to avoid blind conformity and factual inaccuracies in science content due to negligence at any single stage. Staff at each stage should fulfill their respective duties, utilizing their professional skills to optimize their work and ensure zero errors in reported content. Subsequently, each staff member's performance should be evaluated based on feedback from society at large. In the scientific research community, the evaluation of relevant personnel should not be limited to academic reports and professional titles; truly promoting science

communication should foster a positive and upward atmosphere in the industry [4].

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Note: Figure translations are in progress. See original paper for figures.

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