



A Study on the Reporting Framework of Aerospace News by New Mainstream Media ——A Case Study of Xinhua News Agency's Official Weibo Coverage of Chang'e-6

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Abstract. Against the dual backdrop of in-depth media integration and the vigorous development of the aerospace industry, new mainstream media have emerged as the core carriers for disseminating aerospace discourse. Taking Xinhua News Agency's official Weibo coverage of the Chang'e-6 mission as the research object, this paper conducts a systematic analysis of 42 valid news samples based on William Gamson's "interpretive package" framework theory combined with narrative analysis methods. The study finds that Xinhua News Agency's official Weibo has constructed a hierarchical and functionally complementary "interpretive package" system for aerospace reporting through five core frameworks, thus achieving multiple goals including aerospace information dissemination, public scientific literacy enhancement and national image construction. This study reveals the framework construction logic and narrative innovation path of new mainstream media in hardcore science and technology communication, providing practical enlightenment for improving the communication power of China's aerospace discourse and enhancing scientific and technological confidence.

Keywords: New Mainstream Media, Aerospace Reporting, Framework Theory, Interpretive Package, Narrative Analysis, Xinhua News Agency's Official Weibo.

1 Introduction

1.1 Research Background

In recent years, China's aerospace industry has entered a "golden age" of high-quality development. [1] Major missions such as the Chang'e-6 lunar far-side sample collection and return, and the regular operation of the China Space Station have achieved successive breakthroughs. New mainstream media represented by Xinhua News Agency and People's Daily have built a modern communication system of "authoritative release + interactive communication" with the help of social platforms such as Weibo and

WeChat, changing the one-way indoctrination mode of traditional aerospace reporting. [2]

As the national news agency, Xinhua News Agency's official Weibo boasts over 110 million followers and has always occupied a core position in agenda-setting for major aerospace event coverage. The Chang'e-6 mission, a landmark event in the global aerospace field in 2024, achieved the unprecedented feat of the world's first unmanned lunar far-side sample collection and return. Its coverage needs to not only deliver professional and authoritative scientific and technological information but also cater to the public's cognitive needs and emotional resonance. Against this background, analyzing the framework construction and narrative strategies of Xinhua News Agency's official Weibo coverage of Chang'e-6 is of great practical significance for understanding how new mainstream media balance the professionalism and popularization of science and technology communication, and how they unite social consensus through media narratives.

1.2 Research Significance

This study applies the "interpretive package" framework theory to the analysis of aerospace reporting by new mainstream media, refining the application dimensions of framework theory in the field of science and technology communication. Existing studies mostly focus on traditional media or single framework types. Through the dual analysis of "frame devices + reasoning devices" combined with narrative analysis methods, this study constructs a complete analytical system of "theory-text-practice", enriches the theoretical achievements of science and technology communication and media framework research, and provides a reference methodological paradigm for similar studies.

The research conclusions can provide specific guidance for new mainstream media to optimize aerospace reporting: first, clarify the core framework composition of aerospace reporting to help media enhance the systematicness of content production; second, summarize effective narrative innovation strategies to provide practical paths for the "breakthrough" of science and technology communication; third, reveal the realization ways of emotional resonance and value guidance in aerospace reporting, enhance the appeal and cohesion of science and technology communication, and thus improve the international communication power of China's aerospace discourse.[3]

1.3 Research Innovations

This paper combines the "interpretive package" framework theory with narrative analysis, breaking through the limitations of single research methods, and deeply analyzes the symbolic construction and meaning production process of aerospace reporting. Taking the Chang'e-6 mission, a landmark aerospace project, as a case study and focusing on Xinhua News Agency's official Weibo, a core communication platform, the research has highly targeted samples and the conclusions are of greater practical reference value. On the basis of traditional framework analysis, it adds analytical dimensions such as

source types and narrative chronology to comprehensively present the communication logic of aerospace reporting by new mainstream media.

2 Literature Review

2.1 Research on Framework Theory and "Interpretive Package"

The concept of framework originated from Gregory Bateson. In his 1955 paper *A Theory of Play and Fantasy*, he argued that a framework refers to participants' understanding and interpretation of the content and context of communication. It establishes rules for meaning and interpretation, which can be explicit or implicit, shared or divergent. [4] Since then, communication framework theory has been extensively studied abroad, with representative scholars including Erving Goffman, Todd Gitlin and William Gamson.

In 1974, the American sociologist Erving Goffman introduced the concept of "framework" into cultural sociology in his published work *Frame Analysis: An Essay on the Organization of Experience*. Goffman believed that a "framework" is a cognitive structure that people use to understand and interpret the external objective world. People's induction, structuring and interpretation of real-life experiences depend on a certain framework, which enables people to locate, perceive, understand and summarize a large amount of specific information. [5] In 1980, the American sociologist Todd Gitlin introduced framework theory into the field of journalism and communication. On the basis of Goffman's research, he summarized the framework as a stable paradigm of selection, emphasis and omission. He argued that our understanding of situations and behaviors are not fixed, but are influenced by the frameworks we use. This theory emphasizes the cognitive and interpretive factors in social interaction and provides a new perspective for understanding social behaviors. [6] Later, framework theory developed three core concepts: framing, frame building and framing effects, corresponding to the three fields of media content, news production and media effects in communication research respectively.

At the end of the 20th century, framework theory was introduced into China and began to be applied in the field of journalism and communication studies in China, and then became one of the most frequently cited theoretical concepts. Chinese scholars have carried out localized adaptation of framework theory to make it more in line with the Chinese context and cultural characteristics. The earliest research on framework theory in China came from Tsang Kuo-jen, a scholar from Taiwan. He pointed out that each framework is divided into three hierarchical structures: high, medium and low. The high-level structure mainly expresses the topics and themes in content communication from the perspective of abstract meaning or content gist; the medium-level structure refers to the main events, causes and backgrounds, results, evaluations and impacts of news reports; the low-level structure refers to the words, sentences and punctuation in news reports. [7]

2.2 Research on Aerospace Reporting

Domestic research on aerospace reporting mainly focuses on three dimensions: first, research on specific reporting objects. For example, studies have found that People's Daily's aerospace reporting has constructed the image of astronauts [8] ; second, research on communication strategies, emphasizing that new mainstream media should adopt interactive communication, visual presentation and other methods to improve communication effects [9] ; third, research on communication effects and impacts, focusing on the role of aerospace reporting in national image construction and public scientific literacy enhancement.

Existing studies have three shortcomings: the research objects are mostly traditional media or single communication platforms, with insufficient attention paid to aerospace reporting by new mainstream media on social platforms; the research methods tend to be single content analysis, lacking the deep integration of framework theory and narrative analysis; the analysis of the "meaning production" process of aerospace reporting is not in-depth enough, failing to fully reveal how media realize value transmission through symbolic construction. Targeting the above shortcomings, this study constructs a multi-dimensional analytical framework.

3 Research Design

3.1 Research Object

The research object of this study is all reports related to the Chang'e-6 mission published by Xinhua News Agency's official Weibo from May 3, 2024 (the launch of Chang'e-6) to November 24, 2025 (the release of lunar soil research results). After manual screening to exclude non-original content such as repeated reposts and irrelevant interactions, 42 valid samples were finally obtained, covering the whole process of mission launch, lunar landing, sampling, return and achievement interpretation.

The sample characteristics are as follows: in terms of time distribution, 62% of the reports are concentrated at key mission nodes (launch, landing, return), and 38% are subsequent achievement interpretation and long-term communication; in terms of content forms, there are 15 text news briefs, 12 text + image reports, 10 text + video reports, 3 live broadcasts and 2 interactive topics; in terms of source types, official institutional sources account for 45%, scientific research academic sources account for 31%, government and industry sources account for 14%, and media and platform sources account for 10%.

3.2 Research Methods

Interpretive Package Framework Analysis. Based on Gamson's "interpretive package" theory, this study regards news samples as a complete meaning construction system and conducts analysis from two dimensions: "frame devices" and "reasoning devices". [10] Frame devices refer to the core themes and topic division of reports, while reasoning devices refer to the symbolic strategies and argumentation logic to realize

framework meaning. [11] The specific analysis steps are as follows: first, conduct open coding on the samples to extract core topics; second, classify the topics into different framework types and clarify the core connotation of each framework; finally, analyze the metaphors, phrases, examples, visual symbols and other reasoning devices adopted by each framework. [12]

Narrative Analysis Method. Focusing on the narrative structure and narrative strategies of news samples, the analysis is carried out from three dimensions: first, narrative perspective, analyzing the combination of multiple perspectives adopted by reports, such as official perspective, expert perspective and public perspective; second, narrative chronology, exploring how reports present mission progress and significance through chronological arrangement (linear narrative, flashback narrative, interspersed narrative); third, narrative symbols, analyzing the role of cultural symbols, technical symbols, emotional symbols, etc. in reports in strengthening narrative meaning.

3.3 Research Methods

The keyword "Chang'e-6" was searched on Xinhua News Agency's account on the Weibo official website, and manual screening was conducted to remove content such as simple reposts, resulting in 50 valid data items. The Octopus software was used to crawl page data from the website, including release time, Weibo content, number of likes, reposts and comments.

The obtained data were analyzed from multiple aspects such as content and form and coded. Six categories were formulated, including content theme, content release form, discourse tone, source type, communication timeliness rhythm and news genre, and some of these categories were coded with first-level and second-level indicators. In the content theme category, five core frameworks were constructed: mission progress and authoritative release, technological breakthroughs and scientific popularization, emotional resonance and cultural empowerment, national narrative and strategic guidance, and achievement summary and memory construction. (See Table 1 for details)

Table 1. Coding Table

Cate- gory	Framework Setting		Reasoning Devices
	First-level Indica- tor	Second-level Indi- cator	
Con- tent Theme	Mission Progress and Authoritative Release (A)	Mission Prepara- tion Node Release (A1)	Release information on pre-launch detector tests, launch vehicle preparation and other prep- aration work
		Core Mission Dy- namic Update (A2)	Release key progress information such as launch, lunar landing, sampling and return in a timely manner
		Mission Conclu- sion and Achieve- ment Announce- ment (A3)	Focus on summary and authoritative infor- mation such as mission conclusion, sample handover and follow-up research initiation

	Technological Breakthroughs and Scientific Popularization (B)	Key Technology Interpretation (B1)	Explain the technical principles of lunar far-side landing, docking, etc. in popular language or visual forms
		Scientific Issue Interpretation (B2)	Interpret the scientific significance and research value of exploring lunar evolution, lunar soil composition, etc.
		Research Achievement Interpretation (B3)	Timely convey cutting-edge scientific conclusions such as lunar soil viscosity and lunar mantle temperature
		Popular Science Knowledge Dissemination (B4)	Interpret the scientific significance of aerospace exploration and popularize aerospace knowledge to the public
	Emotional Resonance and Cultural Empowerment (C)	Anthropomorphic Interaction (C1)	Carry out emotional communication in forms such as simulating "Chang'e-6 posting Weibo" to enhance intimacy
		Cultural Symbol Implantation (C2)	Integrate traditional images and era symbols such as "Five-star Red Flag" and "Queqiao Relay Satellite"
		Emotional Value Sublimation (C3)	Explore humanistic stories and spiritual cores such as the perseverance of scientific research teams and the inheritance of aerospace spirit
	National Narrative and Strategic Guidance (D)	National Strategy Connection (D1)	Link with policy orientations such as the aerospace power strategy and the new nationwide system
		Authoritative Discourse Guidance (D2)	Release congratulations and instructions from national leaders to strengthen the national importance of the mission
		International Status Highlighting (D3)	Highlight international breakthroughs such as "the world's first lunar far-side sampling" to convey hard scientific and technological strength
		Team Spirit Highlighting (D4)	Focus on scientific research teams and measurement and control personnel to reflect institutional advantages and collective responsibility
	Achievement Summary and Memory Construction (E)	Mission Whole-process Review (E1)	Mission Whole-process Review (E1) Systematically sort out key mission nodes to form a complete event memory chain
		Core Achievement Extraction (E2)	Focus on landmark achievements such as "1935.3 grams of lunar far-side samples" to strengthen the public's core cognition
		Long-term Value Prospect (E3)	Link with subsequent lunar exploration missions to extend the communication value and memory continuity of achievements
Content	Text (F1)		
Re-	Text + Image (F2)		
lease	Text + Video (F3)		
Form	Live Broadcast (F4)		

Dis-course Tone	Single-voice Tone (G1)		Adopt institutional discourse with a formal and serious style, such as authoritative news briefs and policy interpretations
	Dual-voice Tone (G2)		Integrate lively discourses such as anthropomorphic expressions and online buzzwords, such as "Chang'e posting Weibo" and "wishing examinees success"
Source Type	Official Sources (H)	Government Institutional Sources (H1)	Cite mission data and achievement announcements released by the China National Space Administration and the Lunar Exploration Project Headquarters
		Core Leadership Sources (H2)	Cite statements from national leaders and expressions in the Two Sessions reports and other government-related contents
	Scientific Research Academic Sources (I)	Research Institute Sources (I1)	Cite interviews with chief designers, researchers and other experts on mission difficulties and achievement significance
		University Scientific Research Sources (I2)	Research achievements led by university scientific research teams, focusing on academic breakthroughs
	Diversified Sources (J)	Documentary Interview Sources (J1)	Content formed by on-site tracking and character interviews by journalists, with documentary characteristics
		Expert Interpretation Sources (J2)	Interpretation of professional content by industry experts to lower the public's understanding threshold

4 Research Findings

4.1 Framework Construction: The "Interpretive Package" System for Aerospace Reporting

Based on the coding analysis of 42 samples, Xinhua News Agency's official Weibo has constructed a complete "interpretive package" for Chang'e-6 reporting through five core frameworks, which are independent yet organically integrated, realizing the unity of information dissemination and meaning construction.

Mission Progress and Authoritative Release Framework. As the basic framework of aerospace reporting, it accounts for 29% of the total samples. Its core function is to deliver authoritative information on mission progress and construct the public's basic cognition of the event.

In terms of frame devices, it focuses on the whole process of "mission preparation - key actions - achievement release". The core topics include key nodes such as launch preparation, orbit adjustment, lunar far-side landing, sampling operation, rendezvous and docking, return and landing, and sample handover. For example, On June 25, 2024,

the day when the return capsule landed, three consecutive news briefs updated the landing progress and preliminary achievements in real time.

In terms of reasoning devices, it mainly adopts a combined strategy of "official sources + data support + concise expression". The sources are mainly official institutions such as the China National Space Administration and the Lunar Exploration Project Headquarters to ensure the authority of information. Specific data such as "1935.3 grams of lunar soil" and "53-day mission cycle" are used to enhance credibility.

Technological Breakthroughs and Scientific Popularization Framework. This framework accounts for 24% of the total samples. Its core function is to analyze the technical difficulties and scientific significance of the aerospace mission, building a bridge between professional knowledge and public cognition.

The frame devices focus on three topics: key technology interpretation, scientific issue interpretation, and research achievement interpretation. For example, the June 26, 2024 report *Why Dig for "Treasures" on the Lunar Far Side? Experts Interpret Three Core Significances* explained the scientific value of lunar far-side exploration through a question-and-answer format.

The reasoning devices adopt a strategy of "expert interpretation + visual presentation + popular expression". Aerospace engineers and experts from research institutes are invited to provide professional interpretations. Complex technical principles are explained through visual forms such as schematic diagrams and animation videos. Popular metaphors such as "space skipping stone" and "lunar kiss" are used to lower the public's understanding threshold.

National Narrative and Value Guidance Framework. As the core value framework of aerospace reporting, it accounts for 21% of the total samples. By linking the aerospace mission with national strategies and institutional advantages, it constructs national image and national identity.

The core topics of frame devices include: national strategy connection, authoritative discourse guidance, institutional advantage highlighting, and international status promotion. For example, the July 15, 2025 report *"Extraordinary 14th Five-Year Plan": Solid Steps in Building an Aerospace Power* linked with the strategic deployment of the National Development and Reform Commission.

In terms of reasoning devices, a strategy of "authoritative discourse + symbolic metaphor + case evidence" is adopted. Authoritative contents such as speeches by national leaders and deployments of government departments are cited to strengthen value guidance. National images are constructed through symbols such as the "Five-star Red Flag" and "Queqiao Relay Satellite". Cases such as collaborative research by scientific research teams and joint support across departments are used to highlight the institutional advantages of the new nationwide system, strengthening the public's national identity and pride.

Humanistic Spirit and Emotional Resonance Framework. This framework accounts for 16% of the total samples. By exploring the humanistic elements in the aerospace

mission, it achieves emotional resonance and spiritual inheritance, softening the communication texture of hardcore science and technology.

The core topics of frame devices include: stories of scientific researchers, anthropomorphic emotional interaction, public emotional expression, and spiritual value inheritance. For example, the June 4, 2024 report *Salute to Aerospace Personnel! They Persisted in the Measurement and Control Post for 53 Days* focused on the dedication stories of scientific researchers. The June 6, 2024 interactive topic *#The Lunar Kiss of Chang'e-6 is So Romantic#* triggered emotional resonance among netizens.

The reasoning devices adopt a strategy of "storytelling + emotional symbols + interactive expression". The appeal is enhanced through specific character stories, such as the scientific research experience of the research team led by Researcher Qi Shengwen. Emotional words such as "salute", "pride" and "romance" are used to stimulate public emotions.

International Perspective and Achievement Communication Framework. This framework accounts for 10% of the total samples. By integrating international media evaluations and international cooperation achievements, it constructs China's international image in aerospace and enhances international discourse power.

The core topics of frame devices include: international media evaluations, international cooperation achievements and global scientific contributions. For example, the June 27, 2024 report *International Media Hail Chang'e-6: A New Milestone in Human Lunar Exploration* integrated positive evaluations from international media such as EFE and Deutsche Presse-Agentur. The May 10, 2024 report *Pakistan's CubeSat Carried by Chang'e-6 Completes Data Handover* highlighted the spirit of international cooperation.

The reasoning devices adopt a strategy of "diversified sources + positive quotation + value emphasis". Positive evaluations such as EFE's "China's aerospace has broken new boundaries in human lunar exploration" and Deutsche Presse-Agentur's "providing a new perspective for lunar research" are cited to strengthen international recognition. Through international cooperation cases and global scientific contributions, China's aerospace development concept of "open cooperation and mutual benefit and win-win results" is conveyed.

4.2 Framework Construction: The "Interpretive Package" System for Aerospace Reporting

Dual-voice Narrative: Integration of Official Discourse and Public Expression.

Xinhua News Agency's official Weibo has broken through the single official discourse system of traditional mainstream media and adopted a dual-voice narrative strategy of "official discourse + public expression". On the one hand, expressions such as "released by the China National Space Administration" and "reporters learned from XX department" are used to maintain the authority and seriousness of official reports. On the other hand, public discourses such as anthropomorphic expressions and online buzzwords are integrated to enhance the affinity of communication.

For example, the June 2, 2024 landing report adopted the official expression "Chang'e-6 successfully landed at the pre-selected landing area on the lunar far side" in the main text, and at the same time was accompanied by the online popular expression "#Chang'e-6 Checked in Successfully on the Lunar Far Side#".

Chronological Narrative: Combination of Key Nodes and Long-term Extension.

In terms of narrative chronology, a model of "intensive reporting at key nodes + long-term extension reporting of achievements" is adopted to construct a complete aerospace narrative chain. At key nodes such as launch, landing and return, instant and intensive reporting is adopted to deliver core information in a timely manner and occupy the commanding height of agenda-setting.

In terms of time distribution, 62% of the reports were released during the mission execution period (May-June 2024), focusing on key node dynamics. 38% of the reports were released after the mission (July 2024-November 2025), focusing on lunar soil research results and the promotion of aerospace spirit. This chronological narrative not only meets the public's immediate attention to major events but also achieves in-depth communication of aerospace value through long-term extension, avoiding the dilemma of "tidal communication".

Diversified Narrative: Coordination of Technical Presentation and Symbolic Metaphor.

In terms of narrative presentation, technical narrative and symbolic narrative are integrated to improve communication effects through diversified expression methods. Technical narrative focuses on the technical details and scientific principles of the aerospace mission, adopting forms such as data, charts and expert interpretations to ensure the professionalism of the content. Symbolic narrative conveys in-depth value significance through metaphorical expressions such as cultural symbols and emotional symbols.

For example, the June 3, 2024 report *Chang'e-6 Sends Back Lunar Far Side Photos* not only displays technical images of the group photo of the lander and ascender but also strengthens national identity through the symbol of "the Five-star Red Flag fluttering on the lunar far side". This diversified narrative realizes the synchronous communication of technical information and value significance.

5 Conclusion

Taking Xinhua News Agency's official Weibo coverage of Chang'e-6 as samples, this study reveals the framework construction and narrative characteristics of aerospace reporting by new mainstream media based on the "interpretive package" framework theory and narrative analysis methods. The study finds that Xinhua News Agency's official Weibo has constructed a complete "interpretive package" for aerospace reporting through five frameworks, namely mission progress and authoritative release, technological breakthroughs and scientific popularization, national narrative and strategic guidance, humanistic spirit and emotional resonance, and international perspective and

achievement communication. In terms of narrative strategies, it adopts innovative methods such as dual-voice narrative, chronological narrative and diversified narrative, realizing the organic unity of authority and popularization, professionalism and interestingness, information transmission and value guidance.

In the future, new mainstream media should continue to optimize the framework system of aerospace reporting, innovate narrative forms, balance the relationship between professional communication and popular communication, instant communication and long-term communication, domestic communication and international communication, and continuously improve the communication power, guidance, influence and credibility of aerospace discourse, providing strong media support for the development of China's aerospace industry and the enhancement of scientific and technological confidence.

References

1. Dong, Z. Y.: *A Study on the Shaping and Presentation of the Media Image of Chinese Female Astronauts by the Media Matrix of People's Daily*. Guangxi University (2025)
2. Yang, Y. Y., Wang, S. Q.: The Construction of China's Aerospace Power Image by Mainstream Media: A Case Study of CCTV.com's News Coverage of Lunar and Mars Exploration in the Past Decade. *Press Outpost* (06), 18–19 (2025)
3. Jiang, Y. X., Meng, Y. F., Zhang, J. T.: A Comparative Study on TikTok Coverage by Chinese and Western Media from the Perspective of Framework Theory. *Journalism Forum* 39(06), 21–25 (2025)
4. Bateson G.A theory of play and fantasy : Steps to an ecology of mind[J].New York: Ballantine,(1972)
5. E.Goffman, Framing Analysis: An Essay on the Organization of Experience[J].New York, HarperandRow,(1974)
6. Gitlin, T.: *The Whole World Is Watching: Mass Media in the Making and Unmaking of the New Left*. Huaxia Press, Beijing (2007)
7. Zang, G. R.: *News Media and News Sources: Discourse on Media Framework and Social Reality Construction*. San Min Book Company, Taipei (1999)
8. Cai, W. L.: *A Study on the Media Image Construction of Chinese Astronauts by People's Daily (1998-2019)*. Nanjing Normal University (2021)
9. Tao, R.: *A Study on Aerospace Technology Reporting in Short Videos of Mainstream Media from the Perspective of Framework Theory*. Guizhou Minzu University (2024)
10. Peng, C., Zheng, H. Y., Liu, X. Y.: A Study on the Discourse Strategies of People's Xiong'an Network in Shaping the City Image from the Perspective of "Interpretive Package" Theory. *Media* (04), 91–93 (2025)
11. Wu, W. X.: *A Study on the Coverage of Chinese and American New Energy Vehicles by Der Spiegel from the Perspective of the "Interpretive Package" Theory*. Beijing Foreign Studies University (2025)
12. Bi, K., Tian, L.: An Analysis of the Framework Construction of Mainland News Coverage by Taiwanese Media: A Path Based on Gamson's "Interpretive Package". *Taiwan Studies* (04), 79–89 (2024)

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