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A Study on the Synergistic Effects of Media Coverage and Environmental Public Policies on Public Environmental Awareness and the Mechanism of Pro-environmental Behavioral Transformation

Biying Wu

Guangdong Country Garden School, Shunde, China
wubiying@gcgsedu.com

Abstract. Against the dual-carbon strategic background of China's ecological civilization construction, media coverage and environmental public policies jointly shape public environmental cognition. This paper adopts a mixed-methods design combining text content analysis with an offline questionnaire survey and builds on agenda-setting theory, the theory of planned behavior, and the social amplification of risk framework. Taking waste classification and air pollution governance as typical cases, it aims to explore how media reports and environmental policies synergistically influence public environmental awareness, and to unpack the internal psychological mechanism that transforms awareness into stable pro-environmental behavior. The findings indicate that media amplify environmental risk perception while policies provide institutional constraints and incentives, and that their joint effect significantly promotes public environmental participation. However, fragmented media narration and insufficient policy publicity tend to produce a disconnection between awareness and action. This study enriches the interdisciplinary framework of environmental communication and offers optimization suggestions for environmental governance publicity.

Keywords: Environmental media report, Environmental public policy, Public environmental awareness, Pro-environmental behavior, Behavioral transformation mechanism

1. Introduction

Ecological governance depends on public participation, which relies on citizens' environmental cognition and attitudes. Against the backdrop of China's dual-carbon strategy, governance is shifting toward a government-media-public collaborative paradigm, making public environmental awareness a key indicator of its social foundation. Media coverage and environmental public policies are the two core external drivers: media shape what the public thinks about and how, while policies define what the public should do and is willing to do.

Existing research has developed along two separate lines: environmental communication studies examine how media agendas, risk narratives and emotionalized reporting shape public

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environmental cognition [1-3], while policy research focuses on how institutional design affects residents' pro-environmental behavior [4, 5]. Yet most studies treat media and policy in isolation, lacking an integrated analysis of their synergy and rarely linking the chain from awareness through psychological variables to behavior [6, 7].

To fill this gap, this paper addresses two questions: how media coverage and environmental policies interact synergistically to shape public awareness, and which mediating psychological factors transform awareness into stable behavior. Taking waste classification and air pollution governance as typical cases, it combines text content analysis with an offline questionnaire survey, building on agenda-setting theory, the theory of planned behavior (TPB) and the social amplification of risk framework (SARF).

By integrating environmental communication and public policy research, this study proposes an analytical framework for media-policy synergy and links the psychological chain from awareness to action, offering practical implications for government policy communication and environmental reporting.

2. Core concepts and theoretical foundations

2.1. Connotation and communicative functions of environmental media reporting

Environmental media reporting refers to mass media's collection, processing and dissemination of environmental information, encompassing environmental news, new-media content, documentaries and government media policy releases. It combines risk notification with knowledge popularization, covering risk facts such as pollution incidents and climate change as well as solutions such as environmental policies and green lifestyles.

Functionally, environmental reporting serves four purposes: informing the public about environmental quality, pollution causes and governance progress; agenda-setting, which directs attention to selected issues [8]; risk warning in emergencies; and value shaping through narrative framing [1, 2]. Through these functions, the media bridge environmental facts and public cognition.

2.2. Classification of environmental public policies and public perception channels

Environmental public policy refers to the institutional arrangements and action norms formulated by the government to protect the environment and regulate social actors' environmental behavior. It falls into two categories. Regulatory (command-and-control) policies—such as plastic bans, emission permit systems and mandatory waste-sorting regulations—establish behavioral boundaries through laws, standards and penalties, setting bottom lines and punishing violations. Incentive-based policies—such as subsidies, tax incentives, green points and carbon inclusion schemes—lower the cost of pro-environmental behavior and guide voluntary compliance [7].

Policies influence the public only when perceived and understood through channels such as policy documents, government media releases, media translation, community campaigns and interpersonal communication. What the public perceives is not the policy text itself but a cognition formed through media-mediated translation, whose accuracy depends on coverage adequacy and interpretability [4, 5]. Policy effects thus hinge on both institutional design and the completeness of the media communication chain.

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2.3. Theoretical foundations of this study

2.3.1. Agenda-setting theory

Proposed by McCombs and Shaw in 1972, agenda-setting theory holds that the mass media largely decide what the public thinks about, if not what it thinks: repeated emphasis leads certain issues to be regarded as important [8]. Its extensions—attribute agenda-setting and framing—show that media also shape how issues are understood. Here it frames how media push environmental issues into the center of public attention.

2.3.2. Theory of planned behavior

Proposed by Ajzen in 1991, the theory of planned behavior holds that behavioral intention is jointly determined by attitude toward the behavior, subjective norms and perceived behavioral control, and that intention directly predicts actual behavior [9]. Attitude refers to evaluation of behavioral outcomes, subjective norms to perceived social expectations, and perceived behavioral control to perceived difficulty and capability. TPB offers a micro-psychological framework for explaining how environmental awareness translates into behavior [4, 6].

2.3.3. Social amplification of risk framework

Proposed by Kasperson et al. in 1988, the social amplification of risk framework holds that risk signals may be amplified or attenuated as risk events pass through stations such as mass media, opinion leaders and information networks, thereby affecting public risk perception and behavioral responses [10]. Even with limited objective harm, repeated and emotionalized media coverage can significantly amplify risk perception and behavioral intentions [11]. The framework explains how media shape risk perception through risk narratives in the awareness-behavior transformation.

3. Independent pathways of media and policy

3.1. The one-way shaping mechanism of media coverage on environmental awareness

3.1.1. Differences in agenda construction between traditional and new media

Traditional and new media differ significantly in constructing environmental agendas. Traditional media (newspapers, television, radio) follow professional gatekeeping and linear production, providing authoritative, periodic and stable salience for environmental issues [8]. New media (microblogs, WeChat, short-video platforms) are immediate and fragmented; agenda-setting power shifts partly from gatekeepers to algorithms and public participation, allowing issues to gain explosive attention but also to fade quickly [1].

These differences shape public awareness distinctly: traditional media cultivate a stable, in-depth foundation for understanding the systemic and long-term nature of environmental problems, while new media expand information entry points, especially for younger groups. However, fragmented communication may dilute sustained attention, producing a shallow "hot-topic environmentalism"—precisely the bias media-policy synergy should correct.

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3.1.2. Emotionalized environmental reporting awakening public risk perception

Besides rational information transmission, emotionalized reporting is another pathway through which media shape environmental awareness: documentaries, striking visuals and personalized narratives awaken risk perception and emotional involvement, turning abstract problems into perceptible personal risks. After the documentary Under the Dome was released, for instance, public environmental concern and willingness to pay rose markedly [3]. SARF likewise holds that risk amplification is often accompanied by emotional content, a key driver of heightened risk perception [10, 11].

Emotionalized reporting provides an affective starting point for risk perception, so that awareness goes beyond mere knowledge. Yet over-rendered risks without solution-oriented narratives may cause risk fatigue, numbness and even environmental anxiety. Balancing risk arousal with constructive narratives is therefore key to optimizing environmental reporting.

3.2. How environmental public policies independently shape public environmental cognition

3.2.1. The hard constraint effect of regulatory policies

Regulatory policies establish clear behavioral boundaries through laws, regulations and penalties. They alter cost-benefit calculations: when violation costs exceed benefits, the public tends to comply and internalizes norms such as "no pollution" and "sorting is obligatory". In household waste sorting, for example, mandatory regulations significantly improved awareness of classification standards, turning sorting from an optional practice into a normative obligation [4, 12].

The cognitive effects of hard constraints operate on two levels: establishing "bottom-line awareness" of prohibited behaviors and reinforcing "responsibility awareness", by which policy's authoritative signal makes environmental protection a social duty rather than a personal preference [5]. Without adequate publicity, the public may know what is prohibited but not why, remaining passively compliant and failing to internalize environmental values.

3.2.2. The soft guidance effect of incentive-based policies

In contrast, incentive-based policies reduce behavioral costs and provide immediate positive feedback through subsidies, rewards, green points and carbon inclusion schemes, fostering voluntary motivation. Their advantage lies in sustainability: the public acts out of tangible benefits and value identification rather than fear of punishment, so behavior is more easily maintained [7]. Programs such as points-for-rewards in waste sorting and carbon points for green travel have strengthened participation through perceptible incentives [12].

Soft guidance also has limitations: weak or hard-to-redeem incentives decay markedly, and over-reliance on external incentives may crowd out intrinsic motivation, so behavior fades once incentives are withdrawn. Incentive policies therefore need coordination with publicity, education and social norm building to shift from being motivated to acting consciously.

4. Synergistic models, core chapter

4.1. Top-down model: policy introduction plus media interpretation

In the top-down model, policies are introduced first and the media then translate and diffuse them into comprehensible environmental knowledge. Policy is the source and media the channel:

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government media issue authoritative releases, while commercial and self-media provide accessible interpretations, forming a multi-layered communication network [13]. The waste-sorting policy is typical: after its release, media used infographics, demonstration-community reports and interactive mobilization to improve policy cognition and compliance intention [12].

The model's strength lies in authority and consistency: policy signals remain directionally unified through layers of translation, helping society form a concentrated cognitive focus. Its risk is "hot policy, shallow interpretation"—if follow-ups merely repost policy texts or interpret inconsistently, the public may develop distorted cognition [2, 4]. Effective operation depends on agenda coordination and interpretive depth between government and commercial media.

4.2. Bottom-up model: media exposure forcing policy optimization

In the bottom-up model, media exposure of environmental problems generates public opinion pressure that forces policy formulation or optimization. Through investigative reporting and public supervision, the media push environmental concerns onto the policy agenda and prompt decision-makers to revise policies [13, 14]. In air pollution governance, sustained coverage of smog episodes heightened public concern and accelerated the tightening of atmospheric governance policies.

This model enables policymaking to respond to genuine public concerns and strengthens policy legitimacy. Yet two problems must be guarded against: emotionalized public opinion may force hasty policy introduction, and event-focused coverage without root-cause analysis may turn public pressure into short-term responses. The ideal is complementarity of the two models, forming a virtuous cycle of policy guidance, media interpretation, public-opinion feedback and policy optimization.

4.3. Three-layer evolution of public environmental awareness under synergy

4.3.1. Shallow layer: acquisition of basic environmental knowledge

At the first level of media-policy co-communication, the public acquires basic environmental knowledge. Media continuously provide information on pollution causes, sorting standards, recycling and climate change, while policy publicity clarifies behavioral norms, together expanding exposure to environmental knowledge [1, 4]. This level is the cognitive component of awareness, but knowledge alone does not necessarily change behavior.

4.3.2. Middle layer: identification with environmental values

With deepening knowledge and communication, the public comes to identify with environmental values. Media link environmental issues to value frameworks such as "harmonious coexistence between humans and nature" and "sustainable development", while policies convey value orientation through institutional advocacy and exemplary recognition [2, 5]. Environmental protection thus becomes internalized as a personal value judgment—no longer an external requirement but a lifestyle worth endorsing—the pivot between knowledge acquisition and attitude formation.

4.3.3. Deep layer: formation of stable pro-environmental attitudes

At the third level, through the accumulation and reinforcement of knowledge, values and attitudes, the public forms stable pro-environmental attitudes, consistent across situations and manifesting as

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sustained attention, a consistent tendency towards pro-environmental behavior and general policy support [6, 7]. Awareness thus moves from passive reaction to active construction, providing a stable foundation for behavioral transformation. This evolution is not inevitable, however: sustained media-policy synergy determines whether the public reaches the deep attitudinal level.

5. Mechanism of behavioral transformation

5.1. Mediating pathways of psychological variables

5.1.1. The mediating effect of environmental risk perception

Environmental risk perception—the subjective judgment of how likely pollution is to threaten health and well-being—mediates between environmental awareness and behavior. Media amplify it through risk narratives, which in turn drives behavioral intention [11, 15], while policy information strengthens motivation by highlighting the severity and urgency of environmental problems [7]. In the cognition-affect-conation (CAC) model, risk perception is the affective bridge between cognitive and behavioral components: the public acts only when it feels the risk [15].

5.1.2. The constraining effect of subjective social norms

Subjective social norms—perceived behavioral expectations of significant others or society—are a core TPB variable [9]. They are especially salient in the environmental domain: when behaviors such as waste sorting and low-carbon travel become a shared consensus of what "should be done", the public acts accordingly [4]. Media and policies are the two key mechanisms shaping such norms: media cultivate an "environmental fashion" by reporting model groups, while policies reinforce environmental protection as a social responsibility. The demonstration effect of reference groups further amplifies normative pressure.

5.1.3. The moderating effect of perceived behavioral control

Perceived behavioral control refers to the perceived difficulty of performing an environmental behavior and one's own capability, including time, money, skills and convenience [9]. It moderates the conversion of awareness into action: inconvenient facilities, high costs or perceived incapability block behavior, whereas convenient infrastructure and low costs ease it [6]. Governance therefore cannot rely on awareness education alone—it must also improve sorting facilities, recycling systems and affordable green products. Raising perceived control is a key lever for closing the awareness-action gap.

5.2. Three stages of pro-environmental behavior transformation

5.2.1. Intention formation stage

Behavioral transformation begins with intention formation. Based on environmental awareness and through the combined effect of risk perception, subjective norms and self-efficacy, the public forms the intention to perform environmental actions [9, 15]. Intention is the immediate antecedent between awareness and behavior, but its formation does not guarantee action: the stronger the intention and perceived control, the greater the likelihood of transformation. Policies and media should strengthen intention through information provision and norm shaping.

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5.2.2. Short-term trial stage

When intention turns into actual attempts, behavior enters the short-term trial stage. Usually triggered by policy mobilization, demonstration activities or special events, such behavior appears as one-off practices such as responding to waste-sorting pilots or joining environmental public welfare activities [7, 12]. Trial behavior is situation-dependent and unstable—constrained by convenience, peer influence and immediate incentives—and may quickly disappear when the situation changes. This stage most needs external support—incentive reinforcement and convenience improvements—to move the public toward regular action.

5.2.3. Long-term habit formation stage

The final stage is long-term habit formation. Through repeated practice and sustained reinforcement, environmental behavior frees itself from external incentives and situational cues and becomes internalized as a stable life habit, such as daily waste sorting, water and electricity conservation and green travel [6, 7]. Habit formation depends on two conditions: continuously lowering behavioral costs so that pro-environmental behavior becomes the most convenient choice, and providing sustained positive feedback—economic incentives, social recognition and enhanced self-efficacy. Long-term policy incentives, media advocacy and improved infrastructure must work together to complete the shift from external discipline to self-discipline.

6. Existing dilemmas

6.1. Shortcomings of current media environmental reporting

Current media environmental reporting has evident shortcomings. First, narratives are fragmented and event-driven: reporting concentrates on sudden pollution incidents or policy junctures, lacking sustained follow-up and in-depth interpretation, so the public struggles to gain systematic cognition [1, 2]. Second, scientific rigor is insufficient: some reports simplify or exaggerate environmental information, causing cognitive bias, and occasional reversals undermine media credibility [3]. Third, under attention economics, environmental issues tend to be marginalized and coverage heat decays quickly, hindering the steady deepening of public awareness [11].

6.2. Inadequate media adaptation in environmental policy publicity

Media publicity of environmental policies also suffers from inadequate adaptation. In channels, it relies too heavily on government new media, with insufficient reach to traditional media, community platforms and offline scenes, especially missing groups with low digital literacy [13]. In content, some publicity is highly specialized and symbolic, raising the comprehension threshold so that policy cognition stays at "having heard of it" rather than "understanding it" [4]. In timing, interpretation often lags behind policy release, producing a "hot policy, cold interpretation" mismatch that breeds misunderstanding and resistance [12].

6.3. Causes of the awareness-action gap

The awareness-action gap—high awareness coexisting with low action—is a core challenge in environmental governance communication, with causes at three levels. At the individual level, insufficient perceived behavioral control—inconvenient sorting facilities, high time costs or low

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self-efficacy—blocks behavior [6, 7]. At the institutional level, weak incentive signals and lagging convenience-oriented reform hinder the shift from willingness to capability [5]. At the informational level, reporting focuses on risks and anxiety while offering little actionable guidance, so the public knows the problem but not how to act [15].

7. Discussion and strategies

7.1. Strategies for optimizing media environmental reporting

Optimization can proceed along content and mechanism dimensions. In content, the media should strengthen the scientific, sustained and constructive character of reporting—supporting coverage with reliable data and expert interpretation to avoid exaggeration and reversal, and balancing risk narratives with solution narratives so that risk arousal comes with actionable guidance [1-3]. In mechanism, traditional and new media should achieve agenda resonance, with traditional media providing depth and authority and new media handling diffusion and interaction, forming a broad, well-layered environmental information supply system.

7.2. Improving supporting media publicity for environmental policies

Improving policy publicity requires adaptation in channels, content and timing. In channels, a diversified network should be built among government media, commercial media, opinion leaders and community organizations, with segmented strategies for different information habits [12, 13]. In content, policy texts should be translated into accessible forms such as infographics, short videos and case demonstrations to lower the comprehension threshold [4]. In timing, release and interpretation should be synchronized, with cognitive groundwork laid before implementation. A feedback and evaluation mechanism should adjust strategies according to public cognition.

7.3. Comprehensive pathways for long-term behavioral transformation

Promoting long-term behavioral transformation requires integrating institutions, communication, facilities and norms. First, institutional design should pair incentives with constraints, maintaining the bottom-line function of regulatory policies while making incentive policies more perceptible and convenient to redeem [5, 7]. Second, behavioral infrastructure—sorting facilities, recycling systems, affordable green products—should be continuously improved to raise perceived behavioral control [6]. Third, social norm building should leverage the demonstration effect of reference groups, making pro-environmental behavior an important source of social recognition [15]. Fourth, a collaborative network of policy, media, community and schools should embed environmental awareness education into daily scenarios, consolidating pro-environmental behavior into a stable lifestyle.

8. Conclusion

This paper centers on the joint influence of media reports and environmental public policies on public environmental awareness and the transformation mechanism of pro-environmental behavior. It constructs an integrated analytical framework supported by agenda-setting theory, the theory of planned behavior and the social amplification of risk framework, verifying the action paths through case-based text analysis and questionnaire data. The study confirms that media popularize environmental information and amplify public risk perception, while environmental policies provide

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institutional constraints and incentive guidance; their synergistic linkage significantly deepens public environmental cognition, forming a virtuous circle through top-down policy translation and bottom-up public-opinion feedback. Environmental risk perception and subjective social norms are the key mediating variables connecting awareness and behavior, while perceived behavioral control moderates this connection. The research also finds that fragmented media narratives, single-channel online policy publicity and weak perceived behavioral control are likely to separate high awareness from insufficient action, calling for coordinated improvement in reporting content, policy publicity and behavioral conditions. Several limitations should be acknowledged: the sample covers only urban residents, lacking rural and cross-age comparisons, and text analysis and self-reported questionnaires cannot fully rule out social desirability bias. Future research can expand urban-rural and intergenerational comparisons, quantify synergistic effects across media and policy types, and employ panel data and experimental designs for refined environmental governance communication.

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