

A Review of Public Opinion Research in Higher Education

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Abstract: This paper focuses on public opinion in higher education, systematically reviewing and analyzing relevant domestic and international studies to clarify its academic trajectory, core issues and pathways for constructing a scientific governance system. Under digital transformation, public opinion in higher education now displays features of instantaneous dissemination, diversified actors, emotional polarization and far-reaching societal impact. It not only reflects practical contradictions and identifies key focuses in higher education but also contributes to advancing the modernization of educational governance. Research shows that governance must shift from passive response to proactive coordination. By validating the application of evolutionary game models, sentiment recognition technology and risk propagation models, this study identifies multi-stakeholder coordination, ethical regulation of technology and institutional closed-loop mechanisms as critical to optimizing governance systems. This work provides theoretical references for the modernization of educational governance and practical guidance for public opinion early warning, policy adaptation and digital governance in higher education institutions.

Keywords: Public Opinion in Higher Education, Digital Technologies, Multi-Stakeholder Coordination, Educational Governance.

1. Research Background

1.1. Evolutionary Characteristics of Public Opinion in Higher Education Driven by Digital Technologies

The transformation of information dissemination in the digital era has profoundly altered the generation and evolution logic of public opinion in higher education. On the one hand, public opinion dissemination now exhibits instantaneous and dynamic characteristics. The fission-style spread of social media enables a single educational incident to rapidly become a focal point of public discourse. The strategies of four key actors, namely government, media, universities and netizens, significantly influence the trajectory of public opinion. When these actors tend toward collaborative governance, the efficiency of resolving public opinion risks can increase by over 30% [1]. On the other hand, while big data technology has expanded the boundaries of public opinion research, it still faces limitations in presenting a comprehensive factual picture of educational public opinion, uncovering underlying educational issues and supporting decision-making. Overreliance on technology may lead to misjudgments about the essence of public opinion. For instance, keyword-based data capture alone struggles to identify the demands of silent majorities such as grassroots university teachers [2].

Meanwhile, public opinion is also marked by risks of emotional polarization and information distortion. In the era of intelligent media, the echo chamber effect combined with algorithmic recommendation bias causes false information to spread 2.3 times faster than real information. Additionally, the mismatch between digital technology and governance scenarios, which is termed digital dissonance, further undermines the precision of public opinion governance [3, 4]. Furthermore, public opinion topics have grown increasingly diverse, encompassing issues such as the Double First-Class Initiative, graduates employment, academic misconduct and industry-education integration. Non-state actors, including

educational bloggers, are playing an increasingly prominent role in shaping public opinion, intensifying interest dynamics among stakeholders [5].

1.2. Impact of Policy Practices and Emergency on Public Opinion

China's 2021 Double Reduction Policy sparked widespread online discussions about shadow education. This type of public opinion not only reflects the public's demand for educational equity but also exposes the lack of coordination between policy implementation and public opinion guidance. Existing research remains insufficient in exploring the interaction mechanism between the two, requiring text analysis to identify public opinion hotspots and establish early warning systems to optimize governance [6]. Another study used SPSS and Amos software to analyze the psychological perceptions of the public regarding the Double Reduction Policy, developing structural equation models for policy cognition, attitude formation and behavioral intention. This provides a reference for policy communication and implementation [7].

Meanwhile, the large-scale application of online education during the pandemic has further highlighted the impact of public opinion on the transformation of educational models. Tracking the differences in public attitudes toward online education across the pre-pandemic, during-pandemic and post-pandemic periods reveals that the proportion of positive sentiment toward online education increased by 23% during the pandemic. However, after the pandemic, the proportion of negative issues such as the digital divide and teaching quality rebounded, reflecting the dynamic relationship between public opinion and educational practice [8]. Furthermore, international academic assessments such as PISA exert a subtle influence on public opinion. For instance, the United States' unsatisfactory PISA rankings reduced public confidence in education, yet they did not increase the public's willingness to invest in public education. These outcomes highlight the complex relationship between international

assessments and domestic public opinion [9].

1.3. Real Dilemmas in the Current Governance System for Public Opinion in Higher Education

Despite the growing importance of public opinion in higher education, the existing governance system still has multiple shortcomings. Regarding monitoring technology, current applications remain significant limitations. Although big data technology has expanded the boundaries of public opinion research, it struggles to fully present the complete picture of facts and lacks effective dimensions for value evaluation. Additionally, fragmented data sources easily lead to judgment biases and the issue of algorithmic black boxes further exacerbates recommendation biases. At the level of stakeholder coordination, the current governance structure also exhibits deficiencies, often exhibiting an imbalanced state characterized by government dominance, university passivity and public absence. Government public opinion supervision mostly focuses on risk control, while universities' responses are often in a passive, post-incident firefighting mode. The participation of media and the public struggles to be effective due to the lack of standardized guidance. In terms of institutional mechanisms, the soundness of the existing system still needs improvement. Most universities have not yet established a full-process mechanism covering pre-event monitoring, in-event response and post-event evaluation. Not only are monitoring indicators vague, response processes chaotic and feedback channels unsmooth, but also the mature experience of the management, operation and evaluation reform in basic education has not been fully transferred to higher education [10]. Furthermore, shortcomings in ethical development and literacy cultivation cannot be ignored. The lack of data privacy protection measures and the insufficient digital literacy of the public both constrain governance effectiveness. Moreover, the value of ideological and political education in public opinion guidance has not been fully leveraged. For instance, some universities face practical challenges in this area. These challenges include the weakening authority of educators and the rigidification of educational models [11].

2. Research Significance

2.1. Theoretical Significance

The theoretical value of this study first lies in refining the interdisciplinary research framework. It achieves not only systematic improvement of the framework itself but also in-depth clarification of core theoretical linkages and further deepening theoretical connotations within specific temporal contexts to form a coherent chain of theoretical contributions. First, by integrating research findings from pedagogy, communication studies and computer science, this study incorporates the Flat-OCC+EMO-CBOW sentiment recognition model into governance decision-making analysis. This model can boost the accuracy of sentiment recognition in educational public opinion to 89.2%, providing a technical tool for monitoring emotional polarization in public discourse. Meanwhile, applying the TOE framework to interpret AIGC-related educational public opinion enables exploration of AIGC's impact on education through technological, organizational and environmental dimensions, driving the shift of educational public opinion governance from a single-discipline perspective to multidisciplinary integration [12].

Building on this, the study further clarifies the theoretical connections between multi-stakeholder evolutionary game theory and credible data space governance. Sun et al. constructed an evolutionary game model involving four stakeholders, namely media, government, netizens and universities, quantifying each stakeholder's impact on public opinion stability. Complementing this, Wang et al. [13] proposed a credible data space framework centered on security, controllability, value co-creation and ecological openness, which addresses trust barriers and institutional obstacles in the circulation of educational data elements. Together, these works fill the theoretical gap between technological empowerment and stakeholder coordination, offering empirical support for multi-stakeholder collaborative governance theory in higher education. Furthermore, targeting the unique feature of educational public opinion in the post-truth era where emotion takes precedence over facts [14], this study deepens the theory of balancing value rationality and instrumental rationality in public opinion governance. Educational public opinion in this era exhibits two defining patterns of emotion first, truth lagging and attitude first, cognition following. Addressing these requires value guidance through integrating ideological and political education with technological governance. This analysis enriches the theoretical connotations of educational governance by bridging these two dimensions.

2.2. Practical Significance

In practical terms, this study offers concrete operational pathways for public opinion governance in higher education institutions. For example, the integrated SIR and Markov chain risk propagation model helps universities accurately estimate the size of sensitive groups in public opinion. By adjusting the number of sensitive individuals, transmission rates and immunity rates, it optimizes early warning points and intervention strategies, shortening the propagation cycle of public opinion and reducing its peak impact. Pan's [15] three-dimensional system of management, guidance and education organically integrates public opinion management, public opinion guidance and ideological and political education. This provides a practical framework for higher education institutions to merge ideological and political education with public opinion response, enhancing the systematicity and pertinence of public opinion governance.

For government departments, the research findings support the dynamic adjustment of education policies. Analysis based on the U.S. PDK Public Opinion Poll shows that the issues focused on by poll creators [16] deviate significantly from the most pressing problems the public identifies in schools. For instance, polls overly focus on standardized testing while the public is more concerned about student mental health. Such conclusions help governments better balance normativity and randomness in policy agenda setting, reducing the resistance of public opinion to policy implementation [17]. The 2024 U.S. PDK survey also reveals that over 80% of the public ranks teacher retention for student employment preparation as an educational priority and 70% support focusing on student mental health, academic support and college affordability. These data can directly inform adjustments to government education policies.

Furthermore, the study's analysis of public opinion on educational equity provides public opinion references for promoting balanced educational development. Lee & Stacey [18] found through the Australian Social Attitudes Survey that

social class significantly influences the public's perception of fairness regarding income-based educational inequality: upper-class or upper-middle-class groups are more likely to view such inequality as fair, whereas groups that endorse government economic responsibility are more opposed to it. Velásquez [19], using Chile as a case study, confirmed through longitudinal surveys that improved educational attainment reduces perceptions of economic and cultural threats from immigrants, with a stronger impact on mitigating perceived cultural threats than economic ones. These findings can enhance the social acceptance of policies related to educational equity.

3. Research Status

3.1. Progress in Domestic Research on Public Opinion in Higher Education

Domestic research, grounded in local practice, has developed three major research directions centered on the core themes of technology implementation, governance mechanism construction and the alignment of policies with practice. The relevant outcomes also better meet the practical demands of higher education governance in China.

In terms of innovation in public opinion monitoring technologies and methods, domestic scholars have focused not only on the empowering value of big data and artificial intelligence in public opinion analysis but also on overcoming the limitations of these technologies. Wang & Yue pointed out that big data has deficiencies in presenting the full picture of educational public opinion facts, revealing deep-seated educational issues and conducting value assessments. Such deficiencies need to be optimized through paths such as integrating multi-source data, combining qualitative and quantitative methods and enhancing competence in public opinion analysis. Wang et al. constructed a trusted data space framework for education based on three principles, security controllability, value co-creation and ecological openness. This framework connects the data source layer, transmission and processing layer, intermediate service layer, data control layer and data application layer to achieve full lifecycle management of public opinion data, addressing the contradiction between the security and circulation of multi-source data. Niu et al. proposed the Flat-OCC+EMO-CBOW model, which combines sentiment classification from the perspective of cognitive psychology with emoji recognition, increasing the accuracy of sentiment recognition in educational public opinion to 89.2%. Cheng et al. [20] put forward a research and judgment framework of two perspectives, three mindsets and four paths, providing methodological support for public opinion research and judgment in colleges and universities in the big data era.

Building on the continuous refinement of public opinion monitoring technologies and methods, domestic research has further focused on constructing public opinion governance mechanisms. This research generally emphasizes whole-process governance and multi-stakeholder collaboration. It underscores that public opinion governance must confront and address the underlying educational issues, rather than merely suppressing negative expressions. Qing developed a scientific evaluation index system for educational public opinion starting from four sets of relationships, facts and truth, facts and values, crisis management and risk governance and emergency management and underlying patterns. This system covers dimensions such as the accuracy of fact-checking and

the effectiveness of value guidance. She also proposed improving the collaborative governance structure among government, universities and media, as well as establishing a long-term mechanism. Zhang & Hu [21] analyzed the occurrence mechanism of educational public opinion and put forward a governance approach encompassing risk assessment and early warning, active responses from involved units, objective guidance from authoritative media, rational consultation among multiple stakeholders and post-event reflection and emotional consolation. They clarified the core tasks of each stage. For example, requiring involved units to promptly verify information after public opinion emerges and authoritative media to balance information disclosure with public opinion guidance. Pan integrated ideological and political education in universities to build a three-dimensional response system covering management, guidance and education. This system organically merges public opinion management, public opinion guidance and ideological and political education to achieve the dual goals of quelling public opinion and guiding ideological alignment. Focusing on universities as the core arena of public opinion, Liu & Zhang [22] conducted a visual analysis of research literature on university online public opinion from 2007 to 2020 using social network analysis. They further clarified key future research trends, covering dissemination mechanisms, risk assessment and early warning mechanism, public opinion guidance mechanisms, image restoration and reconciliation pathways in public opinion governance, narrative pattern shifts and institutional response mechanisms, alongside crisis response frameworks for major incidents. This work provides directional guidance for deepening and refining public opinion governance mechanisms in universities.

Additionally, domestic research on educational public opinion attaches great importance to the alignment between policies and practice, with much empirical analysis focusing on domestic policies such as the Double Reduction Policy and online education to explore the dynamic logic of alignment between policies and public opinion. Lu et al. took the Double Reduction Policy as their object and found through text analysis that shadow education reform needs to focus on the interaction between government policy texts and online public opinion. By identifying public opinion hotspots, such as off-campus training prices and parental anxiety. They established an early warning mechanism and built a diversified regulatory governance framework of government supervision, corporate self-discipline and public oversight. Zhang et al. used SPSS and Amos software to conduct an empirical analysis of public psychological cognition of the Double Reduction Policy, developing a structural equation model linking policy cognition, attitude formation and behavioral tendencies. They found that the public's depth of policy understanding and degree of interest relevance significantly influence their attitudes. Zhou & Mou conducted a tracking study on online education public opinion across pre-pandemic, during-pandemic and post-pandemic periods. By collecting and comparing Weibo data, they found that the proportion of positive emotions toward online education rose by 23% during the pandemic, but after the pandemic, negative issues such as the digital divide and teaching quality saw a rebound in mentions. This reveals the need for synergy between policy adjustments and public opinion guidance in unexpected events. Liu et al. analyzed the implicit impact of international academic assessments on educational public opinion, providing a reference for China to address public

opinion risks arising from international evaluations like PISA.

3.2. Progress in Foreign Research on Public Opinion in Higher Education

Foreign research has developed a research paradigm integrating theoretical modeling with empirical analysis around three core themes of multi-stakeholder interactions, technological ethics and perceptions of fairness. The findings possess strong cross-cultural relevance.

Within the field of foreign studies on educational public opinion, emphasis lies in exploring multi-stakeholder games and public opinion evolution mechanisms. Stakeholder interactions in public opinion are often analyzed from a stakeholder perspective, with evolutionary game theory serving as the core analytical tool. Sun et al. built a four-stakeholder evolutionary game model involving media, government, netizen and universities, based on the bounded rationality assumption. Their MATLAB simulations revealed that government regulatory intensity, media reporting accuracy, university response speed and netizen participation significantly affect public opinion stability. When the strategies of these four stakeholders converge toward collaborative governance, the efficiency of resolving public opinion risks can rise by over 30%. Hecht et al. [23], focusing on civic education in the UK, found through a survey of 1,003 nationally representative participants that ideology, institutional trust and gender strongly influence public attitudes toward civic education. Conservatives tend to prioritize national identity education, whereas progressives place greater emphasis on cultivating critical thinking. They recommended integrating public perception into the design of civic education. Kwok [24], using the Hong Kong history exam controversy as a case study, pointed out that the disconnect between global education reform agendas and local governance discourses can easily trigger public opinion crises, revealing the complex interplay between transnational education governance and local public sentiment.

Beyond multi-stakeholder games and public opinion evolution mechanisms, foreign research attaches great importance to the application efficacy of digital technology in public opinion and emphasizes strict adherence to the ethical boundaries of technology. Rejeb et al. [25] used web mining and natural language processing techniques to analyze 2,003 ChatGPT education application documents. They found the public acknowledges its positive role in improving students' writing skills and building interactive learning environments, concerns about academic integrity and data privacy. They recommend universities establish norms for AI tool use. Mahmoud analyzed 11,024 pieces of public opinion data related to metaverse education. His analysis drew on the Technology Acceptance Model and the Diffusion of Innovations Theory. He identified core actors in public opinion dissemination as technology companies, universities, education bloggers and the general public, with a game emerging between technology firms' innovative messaging and public privacy fears, leading to a binary split in public opinion between support and skepticism. Niu et al. proposed a combined Flat-OCC and EMO-CBOW model to enhance the accuracy of sentiment recognition in educational public opinion. Spruyt et al. [26] found through a 30-country European survey that in nations with higher PISA scores, the public expresses greater trust in educational technology applications, indirectly reflecting the link between technology efficacy and public opinion perception.

Additionally, the connection between educational equity and public opinion perception is another key focus of foreign research, with studies largely centering on how social class and education level specifically shape public sentiment toward education. Lee et al. [27] used Australian Social Attitudes Survey data to find significant differences in the public's fairness perceptions of income-based educational inequality: the number of people viewing such inequality as unfair is roughly twice that of those seeing it as fair. Upper-class or upper-middle-class groups, meanwhile, are more likely to perceive these inequalities as legitimate. Lee et al. also found that self-interest and neoliberal orientations strongly predict how the public judges the fairness of educational inequality. Velásquez analyzed 6 waves of Chile's 2016–2022 longitudinal social survey data to confirm that rising education levels reduce the public's perception of immigrants' economic and cultural threats and that this effect is stronger for cultural than economic concerns. Baute & Tober [28] used Bayesian mixed-effects models on 85 waves of Eurobarometer data across 15 countries (1976–2014). Their analysis showed that as European integration deepens, the EU support gap driven by education level differences has widened significantly, with lower-education groups showing markedly lower EU support. Spruyt et al. pointed out that an individual's education level correlates positively with their perception of fairness in the education system, with higher-education groups more likely to view the system as fair.

4. Research Review

4.1. Main Contributions of Existing Research

Existing research on higher education public opinion has developed a relatively complete system centered on theoretical construction, methodological innovation and practical implementation. It not only lays a diverse, solid foundation for academic growth in this field but also provides multi-dimensional support for governance practice. At the theoretical level, domestic and foreign studies have integrated insights from education, computer science, sociology and ethics to build a four-dimensional framework spanning technology, actors, institutions and ethics. Domestic studies have proposed the Educational Trustworthy Data Space framework to address trust issues in public opinion data circulation, while the digital desuspension theory, which uncovers mismatches between technology application and governance needs. Foreign research has advanced evolutionary game models to quantify multi-actor interaction patterns and educational equity perception theory, clarifying links between social structure and public opinion. These two strands complement each other. Additionally, studies in other educational subfields have fused public opinion theory with specific scenarios, further expanding theoretical applicability. At the level of merging technical methods with practice, existing work has used social network analysis, text mining, machine learning and game theory simulation to boost research precision. Domestic models like the BTM approach have overcome short-text data sparsity to mine thematic evolution in postgraduate entrance exam interview public opinion [29], while the Flat-OCC+EMO-CBOW model has optimized sentiment recognition. Foreign studies have applied web mining to analyze ChatGPT education app public opinion and Bayesian mixed-effects models to examine Europe's education level-EU support link. All methods have been empirically validated and some have even been

deployed in real-world settings such as guiding public opinion on the Double Reduction Policy or responding to ideological and political education public opinion in universities. This shift propels higher education discourse governance from experience-driven to data-driven approaches. At the level of balancing international perspectives and local characteristics, foreign research has focused on transnational governance and international assessments. For instance, European studies on educational equity perception and Chilean research on immigrant attitudes and education levels offer global governance references. Emerging from local practices such as the Double Reduction Policy and online education, domestic work has developed an adaptive logic that connects policy, public opinion and governance. Examples include phased responses to pandemic-era online education public opinion and collaborative governance of Double Reduction and shadow education public opinion. This has provided localized experience for other developing countries. The complementary of domestic and foreign research has created a differentiated, comparative advantage.

4.2. Limitations of Existing Research and Research Gaps

While existing research has yielded substantial results, three core gaps persist in supporting the construction of a scientific governance system. From the perspective of technological integration, the current depth of technological application is evidently insufficient, with no full-process technological closed loop yet formed for data collection, analysis, decision-making and feedback. Most studies focus on single technological tools. For example, the trusted data space framework for education prioritizes secure data circulation but fails to integrate with public opinion decision-making feedback mechanisms. Sentiment recognition models remain confined to sentiment classification and do not incorporate risk early warning or intervention strategies. Meanwhile, critical issues like algorithm transparency [30] and data privacy protection [31] in technological application still lack systematic solutions. Consequently, balancing technological empowerment with risk prevention and control remains challenging. At the level of stakeholder coordination, existing mechanisms also need refinement. The design of power-responsibility division and interest coordination is too vague, even though most studies emphasize multi-stakeholder participation. While the four-stakeholder evolutionary game model involving government, universities, enterprises, and netizens points to the direction of collaborative governance, it fails to clarify the specific roles each actor should play across the four stages of public opinion including monitoring, early warning, response, and evaluation. Studies on civic education public opinion mention the importance of public involvement but fail to outline a concrete process from demand expression to opinion adoption and feedback. Critically, there is a lack of targeted analysis on the role of informal actors, such as online influencers. Additionally, there is insufficient focus on differences in public opinion between local and key universities. As a result, the precision and adaptability of stakeholder coordination remain inadequate. Regarding the localization of international experience, obvious obstacles remain in bridging Chinese and foreign contexts. Foreign research is mostly rooted in Western governance systems: examples include studies on educational public opinion during European integration and the link between immigrant attitudes and education levels in Chile.

These experiences differ from China's governance context, characterized by government leadership and school-family-society collaboration. However, existing research has not deeply explored conditions for adaptation, so direct borrowing often leads to poor practical fit and ineffective implementation. Meanwhile, domestic studies on local public opinion, such as those on the Double Reduction Policy and online education, do not sufficiently compare with international experience and lack a reflective logic connecting local practices, global references and optimization. Ultimately, this makes it hard to balance the universality and specificity of governance plans.

5. Conclusion

This study examines the characteristics of public opinion evolution in higher education driven by digital technology, the impact of policy practices on public opinion and the challenges faced by the current public opinion governance system. While technologies such as big data and artificial intelligence have played an important role in monitoring and evaluating public opinion, existing research still faces issues such as inadequate integration of technology, flaws in governance mechanisms and the challenges of localizing international experiences. In particular, the application of technology has yet to form a complete feedback loop and the design of multi-stakeholder coordination mechanisms remains insufficiently refined, affecting the efficiency and precision of public opinion governance. Future research should focus on the deeper integration of technology and governance mechanisms, and improve the full-process framework for data flow, analysis and feedback. At the same time, it is crucial to optimize the multi-stakeholder coordination mechanism by clarifying the responsibilities of each stakeholder to enhance the coordination and operability of governance. By adapting and localizing international experiences, we can improve China's higher education public opinion governance system, providing theoretical support and practical guidance for policy adjustments and implementation.

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