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The Media System Between Structure and Interaction: A Theoretical Review of Systemic Analysis in Media and Communication Studies

النظام الإعلامي بين البنية والتفاعل: مراجعة نظرية للتحليل النسقي في دراسات الإعلام والاتصال

Meriem BALTA[1]
1- University Of Skikda| Algeria
Email: m.balta@univ-skikda.dz
https://orcid.org/0009-0006-2318-422X

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Abstract:

This article examines the media system as a systemic configuration shaped by the interdependence of structure and interaction within Media and Communication Studies. Using a theoretical literature review, the article reassesses key contributions from systems theory and media systems research. The analysis shows that existing scholarship has largely emphasized structural dimensions while giving limited attention to interactional dynamics and feedback processes. By integrating structural and interactional perspectives, the study conceptualizes media systems as open and adaptive systems, offering a clearer theoretical framework for future research on contemporary media environments.

This framework may also inform future empirical studies by guiding the operationalization of structure–interaction dynamics across different media systems and contexts.

Keywords

Media and Communication Studies, Media Systems, Structure–Interaction Coupling, Systemic Analysis, Systems Theory.

الملخص:

يتناول هذا المقال النظام الإعلامي بوصفه تشكيلا نسقيا يتحدد من خلال الاعتماد المتبادل بين البنية والتفاعل ضمن دراسات الإعلام والاتصال واعتمادا على مراجعة نظرية للأدبيات العلمية، يعيد المقال تقييم إسهامات رئيسية في نظرية النظم وأبحاث النظم الإعلامية. وتبين نتائج التحليل أن الأدبيات القائمة ركزت إلى حد كبير على الأبعاد البنيوية، مع إيلاء اهتمام محدود بآليات التفاعل وعمليات التغذية الراجعة، ومن خلال دمج المنظورين البنيوي والتفاعلي، تصوغ الدراسة تصورا للنظم الإعلامية بوصفها نظما مفتوحة وقابلة للتكيف، بما يوفر إطارا نظريا أكثر وضوحا للبحوث المستقبلية حول البيئات الإعلامية المعاصرة.

[1] *Corresponding author*)

كما يمكن لهذا الإطار أن يوجه الدراسات التجريبية المستقبلية من خلال المساعدة في تشغيل وتحليل آليات البنية–التفاعل عبر أنساق إعلامية وسياقات مختلفة.

الكلمات المفتاحية

دراسات الإعلام والاتصال، النظم الإعلامية، التحليل النسقي، اقتران البنية والتفاعل، نظرية النظم.

1. Introduction

Media systems are commonly understood as organized configurations of institutions, technologies, content, and communicative practices involved in the large-scale circulation of cultural messages within society. Within Media and Communication Studies, this concept has been employed to designate a broad and heterogeneous body of theoretical perspectives concerned with the configurational properties of media and their relations with socio-political and socio-technical environments (Meyen, 2018, p.55). Rather than constituting a unified theoretical framework, media systems research represents a family of approaches that share common foundational research questions while diverging in analytical scope, units of analysis, and theoretical resources.

Previous scholarship has demonstrated that systemic perspectives have played a significant role in mass communication research, supported by extensive scholarly, institutional, and pedagogical investments (Buhmann et al., 2019, p.48). Comparative studies, in particular, have contributed influential typologies of media systems, emphasizing structural dimensions such as ownership patterns, regulatory frameworks, and professional organization across national and regional contexts (Meyen, 2018, p.57). In parallel, other strands of research have examined how political, economic, and technological environments shape media systems, especially during periods of democratization, crisis, or rapid technological transformation (Durocher, 2017, p.25).

Despite these contributions, media systems scholarship remains conceptually fragmented. Structural approaches have largely privileged institutional arrangements and macro-level configurations, while relational and interaction-oriented perspectives

have focused on feedback dynamics between media institutions, technologies, practices, and socio-cultural environments. However, these two strands have rarely been integrated within a coherent systemic framework. As a result, interactional processes and systemic feedback are often treated implicitly rather than explicitly theorized, limiting the analytical coherence and comparability of existing studies (Joo-Young et al., 2012, p.74).

This conceptual gap raises a central research problem: how can the media system be theoretically conceptualized as a systemic configuration structured by the interdependence of structure and interaction? Addressing this question is necessary to clarify the analytical scope of media systems theory and to strengthen its explanatory potential within Media and Communication Studies.

Accordingly, this article aims to provide a focused theoretical reassessment of media systems scholarship by synthesizing and critically examining key contributions to systemic analysis in the field. By explicitly articulating the relationship between structure and interaction, the study seeks to contribute to ongoing theoretical debates and to offer a more coherent conceptual grounding for future media systems research.

To achieve this aim, the study adopts a theoretical literature review design, drawing on selected foundational and contemporary works in systems theory, media systems research, and communication theory.

2. Literature Review

2.1. Systems Theory and Its Relevance to Media Studies: Foundations of Systems Theory

Despite the pervasiveness of media in contemporary societies, several scholars have noted that the conceptual tools traditionally employed to analyze communication processes remain relatively limited. In response to this limitation, Systems Theory, initially introduced by Ludwig von Bertalanffy and further developed through cybernetics by figures such as Norbert Wiener, has been increasingly mobilized as a foundational analytical framework in media and communication research. Within this body

of work, media systems are commonly conceptualized as open systems, a proposition with significant implications for understanding the form and function of media in dynamic, information-saturated environments.

Drawing on Open Systems Theory, existing studies emphasize key analytical dimensions such as feedback loops, information flows, systemic boundaries, subsystems, and environmental relations. These dimensions have been widely used to explain how media systems interact with broader societal forces and adapt to changing political, economic, and technological conditions. Contributions from systems thinking, cybernetics, and complexity theory are therefore frequently cited as central to the theoretical grounding of systemic approaches in Media and Communication Studies.

A core distinction within Systems Theory concerns the differentiation between open and closed systems. Closed systems are generally defined as systems that do not exchange energy, material, or information with their environment, whereas open systems actively engage with their surroundings and are shaped by these interactions (Barnard, 2017, p. 120). Scholars applying this distinction to media environments argue that contemporary media systems clearly conform to the characteristics of open systems, given their continuous exchange of information, resources, and symbolic content across multiple levels and actors.

In this context, media scholars have highlighted how mass media and, increasingly, digital media environments satisfy the criteria of open systems through the circulation of energy and information via diverse transmission infrastructures, including cable, fiber-optic, satellite, and software-based platforms (Anton, 2016, p.36). The expansion of digital media has further intensified these open-system dynamics by multiplying nodes of interaction and accelerating feedback processes among producers, platforms, and audiences.

2.1.1. Media as Complex Adaptive Systems

Building on systems-theoretical foundations, a growing strand of literature conceptualizes media systems as complex adaptive systems. Within this perspective, scholars emphasize the presence of multiple interacting agents, interdependencies, processes

of adaptation, co-evolution, and the emergence of system-level outcomes. The application of complexity-oriented approaches has thus contributed to a deeper understanding of the dynamic interactions that shape contemporary media environments.

Research adopting this framework typically identifies media agents, including content creators, platforms, regulatory bodies, and audiences, as operating within an ecosystem governed by interdependent relationships. For example, cultural producers depend on platforms for distribution, while platforms set rules and incentives that shape creators' behavior and content visibility. Regulatory frameworks constrain platform operations, even as platforms themselves shape the scope and content of regulation. Although audiences access content through diverse sources, existing studies suggest that platform–producer interdependencies play a decisive role in shaping content exposure and algorithmic curation, positioning platforms as central actors within the media ecosystem (Barnard, 2017, p.125).

Scholars further note that adaptive mechanisms operate at the emergent level of media systems. Through feedback processes, media agents learn from prior outcomes, incorporate successful practices, and adjust strategies accordingly. Innovations disseminate across the system via cross-platform transfer, influencer dynamics, and topical re-contextualization, while regulatory principles are translated into policies and guidelines over time (Anton, 2016, p.39). These adaptive processes contribute to the ongoing transformation of media systems.

Within this literature, emergent outcomes such as circulation patterns, viral phenomena, cultural movements, and shifts in normative frameworks are understood as cumulative effects of systemic interaction and adaptation. Rather than being attributable to individual actors, such outcomes are interpreted as system-level properties arising from the co-evolution of agents, practices, and technological infrastructures.

2.1.2. Intersections of Media Institutions, Technology, and Audiences

Systemic analyses in Media and Communication Studies also emphasize the interdependence between media institutions, technological infrastructures, and audience

practices. Existing research highlights that institutions shape the contexts in which technologies operate, yet do not fully determine how technologies are implemented or used. At the same time, audience practices influence both institutional strategies and technological affordances, generating recursive feedback within the media system.

Studies focusing on media institutions commonly examine dimensions such as ownership structures, financing models, policy frameworks, and regulatory regimes. These institutional arrangements collectively establish parameters for content production, representation diversity, and power relations within media systems. Some scholars observe that regulated institutions may exhibit higher degrees of systemic autonomy, whereas other media organizations align more closely with audience preferences and market logics (Jakobsen, 2010, p.89).

Technological infrastructure, including algorithms, platforms, distribution channels, and data infrastructure, constitutes another central component of media systems. Research has shown that these infrastructures afford particular forms of interaction with audiences, shaping the circulation of content and influencing institutional objectives. While certain programming choices are not directly mandated by ownership structures, audience engagement and usage patterns frequently feed back into institutional decision-making processes, redirecting resources and shaping discursive priorities (Barnard, 2017, p.130).

Across this literature, audiences are increasingly conceptualized as active agents within media systems. Audience practices influence content strategies and governance mechanisms adopted by creators and platforms, even if they do not directly determine regulatory outcomes. The resulting interplay among institutions, technologies, and audiences has been identified as a key factor in sustaining the legitimacy, adaptability, and resilience of contemporary media systems. Existing studies thus underscore the importance of systemic perspectives for understanding how innovation, feedback, and institutional coordination contribute to the stability and change of media systems.

2.2. Structure and Interaction as Core Systemic Concepts

2.2.1. Theoretical Foundations of Structure in Systems

A substantial body of systems-theoretical literature conceptualizes systems as configurations of structures that shape and constrain behavior. Within this perspective, structure is commonly understood as enabling systemic interaction, the primary mode through which entities influence one another, while interaction generates dynamics that may sustain or transform the system over time (Adam & Dahleh, 2019; Nolan & Harvey, 1972, p.123, p.225). Scholars therefore emphasize that understanding systemic dynamics requires specifying the concepts of structure, interaction, and behavior, as well as the relations that link them through processes of coupling.

In the literature, structure is frequently described as a configuration of entities or components interconnected by relations, rules, or constraints. Such configurations are treated as analytically concrete constructs that can be examined empirically, graphically, or mathematically, and that may be decomposed into subsystems or integrated into larger wholes. This property is commonly discussed in terms of hierarchy, whereby structures are nested across multiple levels. Existing studies further note that structures often exhibit relative equilibrium, maintaining stability until internal or external perturbations induce changes in their states, energy flows, or information flows. In this sense, structure is typically associated with the more static properties of systems, even as it conditions dynamic processes.

Historically, the concept of structure has been closely associated with notions of mechanism and organization. Early systemic literature often used the terms structure and mechanism interchangeably, reflecting an emphasis on the arrangement and interrelation of components underlying dynamic processes. Subsequent scholarship has refined this distinction by conceptualizing structure as the relatively stabilized framework within which behavior unfolds, while behavior denotes the dynamic articulation of that framework. Empirical studies of complex systems consistently point to the coexistence of change and persistence, highlighting how large systems maintain recognizable structures while gradually evolving and adapting. Across diverse

domains, boundary conditions, interdependencies, feedback mechanisms, and deadlocks recur in both simple and complex systems, reinforcing the analytical centrality of structure.

Contemporary theories, therefore, assign structures either fixed or variable status and frequently describe them as equilibria that are perceptible yet subject to transformation. Linguistic and systemic models further distinguish between structural, functional, and behavioral dimensions, underscoring the analytical necessity of differentiating structure from interaction while recognizing their interdependence.

2.2.1.1. Structuralist Perspectives

Structuralist approaches seek to establish formal models of the relations and properties that characterize a given domain of objects. Initially developed in linguistics and literary studies, structuralism was subsequently extended to social phenomena, biological networks, and other complex systems. Across these diverse applications, scholars identify several shared conceptual pillars. First, knowledge is understood as relational rather than substantive: meaning resides not in isolated entities, but in the relations among signs, concepts, or elements. Accordingly, structures are defined by patterns of relations rather than by intrinsic properties of individual components.

Second, systems are conceptualized as inherently relational. From this perspective, the study of isolated substances or entities is considered analytically limited, as objects acquire meaning exclusively through their relations with others. Structuralist scholarship emphasizes that increasing relational complexity often gives rise to emergent properties, whereby higher-level patterns cannot be reduced to lower-level elements. Classic examples from linguistics, anthropology, and semiotics illustrate how structural principles operate across scales, from language and culture to social organization.

The structuralist tradition encompasses a wide range of influential figures and paradigms, including Saussure's and Barthes' contributions to linguistics, Hjelmslev's semiotics, Lévi-Strauss's anthropology, and later developments in social theory. Com-

parative engagements among these traditions, as well as parallels drawn with systems-theoretical and biological perspectives, have further reinforced the relevance of structuralist reasoning for understanding systemic organization across domains.

2.2.2. Autopoietic and Boundedly Rational Structures

Another influential strand of systems-theoretical literature addresses structure through the concepts of autopoiesis and bounded rationality. Autopoiesis, originally developed by Maturana and Varela, refers to the capacity of living systems to maintain their organization by continuously producing their own components. Within this framework, structure is understood as a network of relations that remains invariant despite ongoing material turnover, thereby foregrounding the importance of boundaries and structural closure.

The concept of structural coupling further elaborates this relationship by describing how systems maintain invariant states through recurrent interactions with their environments. While interaction-based perspectives often treat structure as an external constraint on behavior, bounded rationality identifies classes of structural invariants that remain viable despite significant freedom in action (Adam & Dahleh, 2019, p.128). In this sense, bounded rationality complements autopoietic perspectives by emphasizing decision-making under constraints rather than self-production alone.

The distinction between structure and behavior is thereby reinforced: autopoietic approaches focus on the conditions required for structural persistence, whereas bounded rationality addresses the range of actions compatible with those conditions. Although autopoiesis has been criticized for its closed, self-referential conception of life, subsequent scholarship has expanded the framework by acknowledging inequalities in information-processing capacities and incorporating more open-system perspectives. These developments highlight how structural invariants coexist with behavioral flexibility across diverse systemic contexts.

2.2.3. Hierarchy, Modularity, and Emergence

A further dimension emphasized in the literature concerns the hierarchical and modular organization of systems. Structure determines not only system integrity and material properties but also constrains behavioral possibilities and channels the flow of energy, matter, or information. Systems research distinguishes among spatial, topological, functional, and organizational structures, each of which is studied in relation to environmental dynamics that shape system behavior (Müller et al., 2005, p.87).

Hierarchical organization is widely observed across natural and social systems, where structures are arranged into nested levels composed of components at varying scales. Examples range from ecological and physical systems to social organizations and technological networks. Scholars argue that such hierarchical arrangements require multi-level analytical frameworks capable of capturing co-evolving structures across scales (Fliedner, 2010, p.117). Within these configurations, modularity facilitates both stability and adaptability by allowing subsystems to evolve semi-independently while remaining integrated within the larger system.

2.3. Interaction as a Central Mechanism in Systems

Interaction occupies a central position in systems-theoretical accounts of dynamics, functioning as the primary mechanism linking structure and behavior. The literature characterizes interaction as enabling transitions among system states and as a key driver of dynamic change. Interactions occur at interfaces connecting subsystems through physical infrastructures such as pipelines, wires, or digital conduits, as well as through symbolic mechanisms, including rules, algorithms, standards, and protocols.

Several scholars distinguish among modalities of interaction, commonly identifying contact, communication, and cooperation as analytically distinct forms (Adam & Dahleh, 2019, p. 132). These modalities operate through selective channels that constrain and enable flows of energy, matter, or information. Contact establishes basic connectivity, communication tailors information flows to specific recipients, and cooperation coordinates joint action through shared goals and role differentiation.

2.3.1. Coupling, Feedback, and Adaptation

The distinction between interaction and coupling further refines systemic analysis. Coupled systems are defined as systems in which the state or behavior of one influences that of another. In open systems, coupling arises through exchanges of energy, matter, or information, producing collective patterns that emerge from localized interactions. Scholars differentiate among dynamic, topological, and structural coupling, depending on whether systems influence states, qualitative behavior, or both (Davydyan, 2014; Sawicki et al., 2023, p.222).

Feedback processes play a critical role in these dynamics. Positive feedback amplifies change by reinforcing outputs that feed back into inputs, while negative feedback stabilizes systems by counteracting deviations. Existing studies illustrate how feedback mechanisms can lead to regime shifts or stabilization across a wide range of social, biological, and technological systems.

2.3.2. Agents, Environments, and Systemic Contexts

Within systemic frameworks, agents are conceptualized as elements capable of action, communication, or decision-making, while environments refer to the surrounding contexts that influence and are influenced by such actions. Scholars emphasize the bidirectional nature of agent–environment relations, noting that agents both shape and are shaped by their environments (Fougères, 2012, p.25). Collective behaviors and forms of emergence often arise when groups of agents act in coordinated ways, effectively functioning as higher-order agents within the system.

Interactions are further situated within environmental systems that provide the contextual conditions for action. These interaction environments may include ancillary systems or components that participate indirectly in interaction processes. Such formulations underscore the layered and nested nature of systemic contexts in which interaction unfolds.

2.4. Structure–Interaction Coupling in Systemic Dynamics

A consistent theme across the literature is the recursive relationship between structure and interaction. Structure constrains how elements can interact, while interaction can modify structure over time (Adam & Dahleh, 2019, p.135). Scholars identify multiple configurations of structure–interaction coupling, illustrating how information flows, interaction patterns, and environmental conditions jointly shape systemic dynamics.

Information flow is frequently highlighted as a key channel through which structure influences interaction. Well-distributed flows support structural integrity, whereas bottlenecks and imbalances may threaten cohesion (Reich & Schröder, 2017, p.47). Conversely, interaction-driven processes can induce structural reconfigurations, including changes in connectivity, modular composition, or system boundaries. Such transformations are often discussed in terms of stability, change, and phase transitions, concepts that have been extensively examined across disciplines ranging from thermodynamics to social systems (Demirel, 2005; Breslauer & Breslauer, 2023, p.25, p.116).

3. Discussion

This article set out to reconsider the media system as a systemic configuration structured by the interdependence of structure and interaction. By synthesizing contributions from systems theory and media and communication studies, the analysis highlights that media systems cannot be adequately understood through structural or interactional perspectives alone, but require an integrated systemic approach.

In contrast to dominant media systems research that privileges institutional arrangements, regulatory frameworks, and ownership structures, the present study emphasizes the dynamic coupling between structural constraints and interactional processes. This perspective aligns with previous systemic approaches while extending them by explicitly theorizing feedback, adaptation, and emergence as core analytical dimensions.

The theoretical implications of this analysis are threefold. First, it reinforces the relevance of systems theory as a unifying framework for media studies. Second, it demonstrates that interaction is not merely an outcome of structure, but a constitutive mechanism through which media systems evolve. Third, it provides a conceptual basis for analyzing contemporary media environments characterized by platformization, complexity, and rapid change.

At the same time, this study is subject to several limitations inherent to theoretical literature reviews. The analysis is based on selected strands of predominantly theoretical scholarship and does not include empirical validation. Moreover, the review focuses on systemic approaches that explicitly engage with structure and interaction, potentially overlooking adjacent perspectives that conceptualize media systems differently.

Several conceptual tensions remain unresolved. In particular, the balance between structural stability and systemic change, as well as the delineation of system boundaries in increasingly hybrid and transnational media environments, warrant further theoretical clarification. These ambiguities reflect ongoing debates within systems theory and media studies rather than shortcomings of the present analysis.

Future research could build on this framework by empirically examining how structure–interaction coupling operates within specific media systems, platforms, or institutional contexts. Comparative studies and mixed-method approaches may further test and refine the analytical utility of systemic perspectives across diverse media environments.

4. Conclusion

This article set out to address a central theoretical question in Media and Communication Studies: how can the media system be conceptualized as a systemic configuration structured by the interdependence of structure and interaction? By revisiting systems theory and synthesizing key contributions from media systems scholarship, the

study has argued that neither structural nor interactional perspectives alone are sufficient to account for the complexity of contemporary media systems. Instead, a systemic approach that explicitly integrates structure, interaction, feedback, and adaptation offers a more coherent and analytically robust framework.

The main contribution of this study lies in its theoretical reassessment of media systems analysis. By bringing together structuralist, interactional, and complexity-oriented perspectives within a unified systemic framework, the article clarifies the conceptual foundations of media systems research and highlights the central role of structure–interaction coupling in shaping media dynamics. In doing so, it contributes to ongoing debates by moving beyond fragmented or implicit uses of systemic concepts and by strengthening the explanatory potential of systems theory within Media and Communication Studies.

At the same time, this study is subject to limitations inherent to theoretical literature reviews. The analysis is based on selected strands of predominantly theoretical scholarship and does not include empirical validation. Moreover, the focus on systems theory and related approaches may have excluded alternative frameworks that conceptualize media systems from different epistemological or cultural perspectives. These limitations, however, reflect the deliberate scope of the study rather than methodological shortcomings.

Future research may build on this framework in several directions. Empirical studies could examine how structure–interaction coupling operates within specific media systems, platforms, or institutional contexts, particularly in digitally mediated and transnational environments. Comparative and mixed-method research may further test the analytical utility of systemic perspectives across diverse media settings. From a practical standpoint, the systemic framework outlined here may inform media policy analysis, institutional design, and media education by offering tools to better understand feedback, adaptation, and resilience within media systems.

In conclusion, conceptualizing media systems as dynamic configurations structured by the interplay of structure and interaction provides a productive lens for advancing

media and communication theory. By reaffirming the relevance of systemic analysis and clarifying its core concepts, this study lays the groundwork for more integrated theoretical and empirical investigations of media systems in an increasingly complex and interconnected media landscape.

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