

Editorial

Affinities between semiotics and environmental sustainability

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Semiotics or semiology, as an interdisciplinary field devoted to the investigation of the “life of signs” and of processes of signification within society (de Saussure, 1959; Jensen, 2001), provides solid theoretical foundations for the analysis of complex phenomena such as environmental sustainability (Wheeler, 2019). In order to understand the application of semiotics to the study of environmental sustainability, it is first necessary to present the assumptions of classical semiotics and discursive semiotics, from which a critical and structured reading of the discourses, practices, and devices associated with socio-environmental issues, can be developed.

Classical semiotics is consolidated primarily on the basis of two fundamental theoretical matrices. The first is the structural linguistics of de Saussure (1959), who defines the sign as the articulation between signifier and signified, emphasizing its arbitrary and relational character. Meaning does not reside in objects in the world, but rather in the differences established within a system of signs. When applied to the environmental field, this conception makes it possible to understand how terms such as “sustainability”, “green development”, or “circular economy” acquire meaning not through direct reference to ecological reality, but through the relationships they maintain with other concepts and values within technical, legal, and political discourses.

The second matrix of classical semiotics is the pragmatist philosophy of Charles Sanders Peirce, who conceives the sign as a triadic relation between the *representamen* (sign), the object, and the interpretant, classifying signs as icons, indices, and symbols according to the type of relation established with the object (Queiroz, 2007). In the study of sustainability, this typology allows, for example, the analysis of how images of preserved forests function as icons (Maran, 2007), how data on carbon emissions operate as indices of environmental impact, and how environmental certification labels act as institutionalized symbols of ecological commitment. This approach demonstrates that the interpretation of environmental signs is always processual and dependent on socio-cultural contexts and on the belief systems of interpreters (Gerhardt and Almeida, 2005).

Discursive semiotics, in turn, developed mainly from the work of Algirdas Julien Greimas, shifts the focus from the isolated sign to the structures of meaning that organize discourses (Brodén, 2015), with a central interest in the ways texts produce meaning through narratives, semantic trajectories, and value systems. Elements such as the

Received
Jan. 1st, 2026

Accepted
Apr. 26, 2026

Released
Apr. 30, 2026



Open access



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generative trajectory of meaning, the semiotic square, and narrative models make it possible to identify fundamental oppositions (Broden, 2011) — such as preservation versus exploitation, economic growth versus environmental conservation — that structure discourses on sustainability.

Within this framework, environmental public policies, corporate sustainability reports, management plans for protected areas, and educational campaigns can be analyzed as narratives in which subjects (the State, companies, communities, civil society) pursue objects of value (environmental balance, social legitimacy, sustainable profit), while confronting helpers and opponents (technology, legislation, resource scarcity, social conflicts). Sanctions, whether positive or negative, manifest themselves in the form of public recognition, certifications, legal penalties, or reputational crises. Discursive semiotics thus reveals the internal logic of these discourses and their possible inconsistencies between the level of enunciation and the level of practice.

Based on these foundations, the application of semiotics to the study of sustainability makes it possible to understand that the environmental crisis is also a crisis of signification. Sustainability is constituted as a disputed discursive object, in which different social actors construct competing narratives about what should be preserved, who should bear the costs of the ecological transition, and which models of development are socially desirable. Semiotic analysis renders visible processes such as the naturalization of certain productive models, the selective moralization of individual behaviors, and the concealment of structural power asymmetries.

In the field of environmental communication, semiotics offers analytical tools for identifying discursive strategies such as greenwashing, in which visual signs, technical terminology, and narratives of socio-environmental responsibility are mobilized to produce an effect of sustainability disconnected from effective material transformations (Braga Junior et al., 2019; Lim et al., 2019). By unveiling these mechanisms, semiotics contributes to a critical reading of institutional discourses and to the strengthening of more transparent and responsible communicative practices.

Moreover, in a context of increasing technification of environmental governance, semiotics can be applied to the analysis of indicators, metrics, digital platforms, and traceability systems, understood as semiotic devices that translate complex ecological phenomena into interpretable data. This translation is never neutral; it selects variables, hierarchizes information, and guides political and economic decisions, directly influencing the trajectories of sustainability.

Finally, by engaging in dialogue with Political Ecology, environmental justice, and critical studies of development, semiotics broadens the understanding of the multiple ways of signifying nature and sustainability in different cultural contexts. In situations of socio-environmental conflict, distinct regimes of meaning — scientific, legal, economic, and traditional — enter into tension, disputing legitimacy and interpretive authority. In this scenario, semiotics not only describes the discourses in circulation, but also contributes to the construction of communicative practices that are more reflexive, inclusive, and consistent with the ethical and social challenges of the transition toward genuinely sustainable models.

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