Reimagining the Learning Organization: Unveiling the Untapped Potential of a Fundamentally Systemic Approach

Amélie Gabriagues
Université Paris-Dauphine – PSL
amelie.gabriagues@dauphine.psl.eu

Séverine Besson
Act4 Talents
Systemic Innovation & Management Institute (SIMI), African Business School, UM6P
severine@act4-talents.fr

Lionel Garreau
Université Paris-Dauphine – PSL
Systemic Innovation & Management Institute (SIMI), African Business School, UM6P
lionel.garreau@dauphine.psl.eu

Abstract :

The notion of the learning organization, championed by Peter Senge, has garnered significant acclaim for its transformative impact on organizational development. While acknowledging the success of Senge's contributions, this paper contends that his portrayal of the systemic perspective as a 'fifth discipline' may have inadvertently constrained the broader potential inherent in adopting a systemic approach to understanding organizational dynamics. More specifically, we observe a latent difficulty in embodying this systemic approach within his own effort to theorize the learning organization. This observation is especially detrimental, as calls grow louder for the formulation of systemic theories, best-suited to tackle the socio-environmental challenges of our time. In this paper, we present a series of seven theoretical and methodological guidelines aimed at revitalizing the concept of the learning organization by

embracing a more foundational and expansive systemic perspective. By reassessing and reinterpreting the learning organization through a fundamentally different lens, we seek to uncover previously overlooked dimensions and possibilities within this conceptual framework. Our research endeavors to contribute novel insights that challenge existing paradigms, offering a pathway to reenchant the concept of the learning organization and unlock its untapped potential, especially in the context of grand challenges.

Keywords: Learning organization; systemic approach; interdependences; emergence

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INTRODUCTION

The topic of the learning organization has been around for decades. Peter Senge's (1990) pioneering work on learning organizations, epitomized by his influential book "The Fifth Discipline," has profoundly shaped organizational development. His concepts champion the idea of dynamic and adaptive entities fostering continuous improvement. With a lasting impact across diverse sectors, both in business and education (Bui & Baruch, 2010; Fillion et al., 2015), Senge's ideas inspired leaders to cultivate a holistic, systemic approach to the learning organization, that allegedly facilitate the understanding of complex phenomena.

Despite its practical acuity, the stream of research about learning organizations has experienced a decrease in the academic field over the last years. Peter Senge, a prominent author in the field of the learning organization, warned as early as the 1990s about the need to develop organizations' capacity for constant adaptation to insure sustainability (Senge, 1990). This is why we consider that this decline is paradoxical, as we experience an increased focus on the way organization may adapt in the Anthropocene ear (de Figueiredo & Marquesan, 2022; Ergene et al., 2018) and address grand challenges (e.g. George et al., 2016; Ferraro et al., 2015; Brammer et al., 2019). as if those notions were operating disjointedly. Facing significant destabilization of the biosphere, we however feel a heightened urgency to inquire into how organizations foster actively their learning. Grand challenges disrupt firmly entrenched systems of representation and imaginaries, thereby complicating the consolidation of solutions (Ferraro et al., 2015). In this context, neglecting learning dynamics confines us to a reactive and defensive posture, which appears ill-suited in complex situations. Thirty years later, as we experience a 'sustainable turn' in the academic world (Alexius & Furusten, 2020), it seems opportune to reopen the chapter of the learning organization.

To fulfill the potential of the learning organization, we propose a fundamentally systemic approach. We have analyzed that the learning organization approach (Senge, 1990) and his legacy have not fulfilled all the promises that the 'systems thinking' concept holds. We observe that systemic thinking is regarded merely as a pivotal facet of the learning organization, yet it does not truly permeate the way Senge theorizes this phenomenon. However, numerous works ascribe a more revolutionary significance to systemic approaches, capable of reshaping the very foundations of the scientific landscape (Von Bertalanffy, 1973; Le Moigne, 1994; Ackoff, 1999). Hence, Senge's contributions appear to underutilize the profound potential of systemics, at a time when we precisely lack sharp theories to envision desirable futures (Gümüsay & Reinecke, 2024). We propose in this theoretical paper to exploit further the potential of a fundamentally systemic approach of the learning organization. We expose the core principles of a systemic approach and use these principles to revisit key elements of the learning organization.

In this view, we generate 7 guidelines that leverage the systemic approach to better exploit the potential of the concept of learning organization. Doing so, we contribute to expand Senge's approach of the learning organization through four ways. First, we overcome an analytical, organization-centric, and normative view of the learning organization to propose a more comprehensive, systemic centric approach. Second, our propositions pave a way towards a more integrative view of the learning organization works. Indeed, the systemic perspective has the potential to carry transdisciplinary approaches and transcend the various levels through which the learning organization has been analyzed. Third, moving from an external objectivist posture, our angle induces to develop more engaged research to co-construct knowledge about the learning organization with practitioners. Finally, our reconsiderations of the systemic principles emphasize how the learning organization is suited to tackle the complexity of grand challenges.

1. THE CONCEPT OF LEARNING ORGANIZATION: ASSESSING SENGE'S HERITAGE

Since the 1980s, researchers and practitioners have explored learning organization models to navigate environmental disruptions (Meyer, 1982). Among the various works, Senge's (1990) influential model, rooted in the integration of learning organization and systems thinking, has

dominated the discourse (Bui, 2019; Örtenblad, 2019). Originating in Senge's groundbreaking book "The Fifth Discipline" (1990, revised 2006), the term "Learning Organization" gained widespread recognition, making Senge the indisputable authority on the concept. His model, a beacon in the literature, has shaped the theoretical landscape and practices, standing as one of the most inspiring frameworks (Örtenblad, 2019).

Senge's unique contribution lies in the practical synthesis of diverse influences, ranging from Jay Forrester's seminal contributions in systems dynamics to the insights offered by Argyris & Schön on learning (Reese, 2020; Argyris, 2004). Thus, Senge has firmly established himself as an essential figure in both the realm of the learning organization and systemic approaches. As we confront unprecedented complex challenges, we aim to revisit this somewhat overlooked literature, exploring its potential avenues of significance.

2.2. UNDERSTANDING SENGE'S USE OF THE SYSTEMIC THINKING AS PART OF HIS LEARNING ORGANIZATION APPROACH

Peter Senge's definition of a learning organization is described as: "an organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3). Senge advocates for the development of learning organizations, where continuous learning and adaptation are embedded in the organizational culture. Systems thinking is a foundational element in creating and sustaining a learning organization.

Senge's (1990) approach of learning organization lies in 5 disciplines that organizations should develop:

- Personal mastery, i.e. the individual ability to deepen and clarify both personal objectives and means to achieve them. Individuals focus on learning for continuous improvement and professional development.
- Shared vision, i.e. sharing a vision of the future, get involved individually to collectively build the missions that the organization sets itself. The shared vision should emerge from people rather than organization only.

- Mental models, i.e. identify and build postulates, generalizations, or even deeply rooted representations or images influence our understanding of the world and our actions. They may constrain or enable the capacity of people to think of different solutions.
- Team learning, i.e. creating a climate so that group intelligence is more advanced than its members' one. The desire for learning becomes intrinsic and unlimited for its members who can work and learn at the same time.
- System thinking, i.e. developing understanding and language for seeing interrelationships rather than things, for seeing patterns of changes rather than static snapshots. This implies going through an understanding of the links of mutual influence between the elements, identifying amplification and regulation loops and allows to initiate solutions rather than treat symptoms.

The five disciplines are not equal to the learning organization as such, but rather are "prerequisites" for the creation of the learning organization. For instance, Marquardt (1996, p.43) argues that the five disciplines according to Senge "facilitate the transition of a company to a learning organization". Among the disciplines, Systems thinking is considered the most important of all (Örtenblad, 2019). It completes the other disciplines and is presented as a "cornerstone" which makes it possible to integrate other disciplines, to combine them into a set of theories and practices (Senge, 1990). Following Senge (1990), many scholars have recognized that systemic thinking to the practice of learning generates learning organizations (e.g. Argyris, 2004; Caldwell, 2012; Rupcic, 2020). Consequently, a significant number of scholars within the learning organization area consider Senge's model to be the most suitable framework for organizational development, incorporating it into their work (e.g. Boyle, 2002; García-Morales et al., 2006; Jamali et al., 2006; Kiedrowski, 2006; Rifkin & Fulop, 1997; Wheeler, 2012). Senge's (1990) learning organization is depicted as pragmatic, normative, and inspirational (Easterby-Smith, 1997; Roper & Pettit, 2002).

Beyond its undeniable merits, we observe that Senge's approach, however, encounters challenges in operationalizing the prominent role of systemic thinking within the learning organization. Initially, the proposed description is executed in a manner quite akin to other disciplines. While Senge repeatedly advocates for systemic thinking as a more foundational practice, the demonstration struggles to transcend mere declaration of intent. In this regard,

perusing his works leaves a lingering question: what is truly systemic about his approach to the learning organization?

2.2. THE PITFALLS OF THE SYSTEMIC APPROACH IN SENGE'S AND FOLLOWERS

Many authors criticize Senge's learning organization approach, specifically on the fact that the approach is not scientifically valid (Bui, 2019; Marquardt, 2019; Örtenblad, 2019) as it merely relies on practical observations that have been abstracted from experience to generate his approach. Senge's approach fails to truly develop a theoretical model of the learning organization capable of grasping its functioning: "[w]hile the disciplines are vital, they do not in themselves provide much guidance on how to begin the journey of building a learning organization" (Flood, 1999, p.1). Considered as vague by many (Caldwell, 2012; Fingers & Brand, 1999; Örtenblad, 2007; Pedler & Burgoyne, 2017; Watkins & Marsick, 2019), Senge's (1990) many facets and the general ambiguity has made it unlikely that the learning organization will have much of a chance to become an academic concept, assuming such goals even existed. Rather, the term "convenience label" has been used to describe the idea that Senge's approach "remains scientifically undefined" (Örtenblad, 2007).

In this paper, we follow another route to constructively criticize and develop Senge's work. In our view, despite the influence that Senge's work has had on systemics, we argue that his approach ultimately lacks a fundamental system approach. In the following paragraphs, we consider the pitfalls of Senge's view, namely its tendency to develop an analytical, organization-centric, and normative orientation, revealing profound incompatibility with other seminal systemic principles.

2.2.2. An analytical perspective

Firstly, we note that the reasoning employed by Senge and his followers underlies a fundamentally analytical logic – the antithesis of a systemic logic. This observation is puzzling, considering Senge's frequent calls for embracing a complex, holistic vision of phenomena. Building on systems dynamics, Senge strives to advocate for several systemic principles, such as focusing on interdependencies, articulating individual and collective levels, modeling stock and flows, and raising awareness of feedback mechanisms and tipping points. His seminal book

accounts for several systemic schematizations of feedback loops, illustrating specific mechanisms commonly encountered by organizations. Senge offers a lucid vision of the unique aspects of systemic thinking as a facet of the learning organization, underscoring its indispensable essence for leaders. Yet, it is noteworthy to observe that his own theoretical endeavor regarding the learning organization scantily embodies the principles he aims to champion.

While the introduction of system thinking calls for adopting a holistic perspective, focused on interdependencies, the absence of a demonstration of these interdependencies is conspicuous in Senge's approach. Senge (1990) limits its argument to raising awareness about the need to consider interrelations between the five disciplines, both in theory and practice, and falls short of the consolidation of a systemic theoretical model of the learning organization. By neglecting interdependencies, this approach unveils a rather structuralist and functionalist view, where the implementation of the five disciplines would naturally lead to the learning organization (Hsu & Lamb, 2020), following a causal determinist pattern only. Albeit implicitly, this unmistakably resembles an analytical approach, scrutinizing main causes to understand a phenomenon – and neglecting the broader range of effects and loops intertwining the five disciplines.

In this regard, the works of Senge's contemporaries are insightful, confirming a major paradox. Although they build upon multiple interpretations of Senge's work (Örtenblad, 2007), the commonality among these approaches lies in their difficulty explaining the relationships between the components of the learning organization. Most studies compel with a descriptive and segmented analysis of the five disciplines (e.g. Choi et al., 2016; Di Schiena et al., 2013; Lee-Kelley et al., 2007; Novak, 2014; Raymaker, 2016). Similarly, Bui and Baruch model (2010) offers a linear, processual view of the antecedents, components (disciplines), moderators, and outcomes of the learning organization, opposite to system modeling.

When considering Senge's legacy, it appears clearly that the systemic intent has been reincorporated into a traditional analytical perspective: if interdependencies are duly acknowledged as important, they are treated as secondary in the reasoning. This observation is all the more paradoxical as Senge fiercely criticizes the analytical approach and causal determinism, preventing to grasp genuinely wholes emerging from parts (Senge, 1990). Yet

Senge's demonstration does never really operationalize how the encompassing nature of systems thinking allows for apprehending and modeling interdependencies between disciplines.

2.2.2. An organizational-centric perspective

Second, Senge's works reveal an organization-centric description based on internal stakeholders' development, hence relegating the environment surrounding the learning organization to the background. The environment is yet not absent in Senge's proposal, even though under different meanings. In seminal works, the environment is at times seen as an external, uncertain, and ever-changing element, requiring constant adaptation (Senge, 1990; also in Bui & Baruch, 2010; Fingers & Brand, 1999). It also qualifies the diffuse climate created by leaders, encouraging individuals and teams to continually expand their capacity to apprehend complexity, clarify their vision, and transform their mental models (Senge, 1990 ; also in Marsick & Watkins, 2003; Örtenblad, 2013). The distinction is intriguing, contrasting a rather traditional strategy perspective of the environment with a cultural view underlying a post-bureaucratic vein. It is ultimately this second approach that is more central in Senge's works, that engages significant effort to depict how a learning environment can prosper internally.

This observation ultimately leads to a second paradox. The learning organization is introduced as a desirable and necessary quest to further cope with the increasing complexity of the world (Senge, 1990). It is deemed to empower people to "think and act with a deeper consciousness of ecosystems" (Senge, 1990) they belong to, for the sake of the organization's sustainability. In more recent works (Senge, 2004, 2008), Senge further substantiates the necessity for organizations to embrace a more holistic, long-term vision, considering the ecological, social, and economic dimensions of sustainability. He highlights the relevance of systemic thinking in elucidating the interconnections among these various facets. Nevertheless, how the complex, multi-faceted environment shapes and is shaped by the emerging learning organization remains unclear in Senge's works (Besson, 2023). His organizational-centric perspective thus prevents the adoption of a broader picture, linking the environment and the learning organization as co-evolving entities. This segmentation permeates recent works (e.g. Bui and Baruch, 2010), where none of the antecedents of the five disciplines pertain to the external environment. It is paradoxical in this regard that the overuse of causal determinism in the literature does not allow for an exploration of external causes and dependencies.

Here again, systems thinking, prompting researchers to uncover relationships beyond the boundaries of the system, is somehow put at distance. As noted by some authors (Hsu & Lamb, 2020), Senge's intention to embrace complexity falls short on overemphasis on managerial patterns and concerns.

2.2.2. Towards an ambiguously normative perspective

Third, Senge's work is infused with normative, sometimes contradictory assumptions regarding organizational practices and purposes. The focus on the five disciplines, coupled with causal determinism, implies insidiously that the aggregation of these disciplines will systematically produce the same consequence, regardless of the context. The five disciplines appear thus as a 'one best way' promoted by Senge, fueling the theory with normativity (Gould, 2016). On this point, Senge later defended himself, arguing that there is no singular way to strive towards the learning organization, with each organization developing its own means to pursue this goal. Nevertheless, it is pertinent that the overarching framework proposed by the five disciplines encompasses all examples of learning organizations that he has had the opportunity to study (Reese, 2020).

This normative approach also diffuses the notion of purpose, who admits two manifestations in Senge's works: a personal purpose, i.e., a direction one wishes to pursue to achieve a vision of our future self; and the purpose of the organization, which must answer the question "why do we exist as an organization?" (Senge, 1990). In Senge's view, the organizational purpose is fueled by personal purposes, thus implying the gradual formation of idiosyncratic, unique purpose for each organization (Senge, 1990). Yet a relatively rigid and normative reading is also at stake, when Senge argues the organizational purpose somehow builds upon interpersonal convergence and strong alignment, until reaching the tipping point. The stance is rather pragmatic: according to Senge, it is by no means necessary to convince all stakeholders, but rather to ensure that enough individuals are gradually engaged around the mission to be able to implement it (Senge, 2004). Senge's works put the emphasis on managing this emerging sense of alignment, through sensemaking and the expression of individual aspirations. His argument turns out in favor of resolving conflicts and antagonisms, thanks to the five disciplines (Brown, 1996; Senge, 1990). This demonstration tends to oversimplify the process through which people

move from conflicts and divergence to a unified vision, and strongly neglects how the organization deals with changing aspirations, especially in uncertain times. More problematically, it instills that the eradication of antagonisms, causing tensions, and the emergence of a dominant view are desirable, leading to a smoother and unproblematic organization where anyone is oriented toward the same purpose.

The normative discourse of Senge fundamentally clashes with complexity, where disorder is inevitable. It fails to apprehend how unexpected, contradictory moves actively contribute to any organization, and should not be neglected as such. Indeed, the normative representation of practices, structures and purposes promoted by Senge shows some incompatible grounds with system thinking.

In essence, while Senge's approach is undeniably promising, we argue that systemic thinking does not fully unfold within it as a comprehensive framework. By confining its scope to a dimension of the learning organization, we lose the very essence of these approaches, which are described as an alternative to the dominant mode of thinking. Thus, we still lack a truly systemic understanding of the learning organization. Despite all these limitations, we believe that having foreseen to consider the learning organization through a systemic view has been a real achievement and opens avenues for further work considering how a fundamental system approach may generate new insights for the learning organization. As Senge (1990) argues, changing our understanding of phenomena requires changing our mental models, including scientific reasoning. This perspective is all the more promising as it presents potential for understanding organizational behavior in the face of major challenges, characterized by increased complexity. In order to do so, we need to present the fundamentals of the systemic perspective, which we propose in the next section.

2. ADOPTING A BROADER SYSTEMIC PERSPECTIVE: AN OVERVIEW OF KEY PRINCIPLES

Systemics (Minati, 2006), systemic thinking (Ackoff, 1999; Richmond, 1994; Senge, 1990), or systems theory (Le Moigne, 1994; Von Bertalanffy, 1973): these terms multiply and intertwine to characterize perspectives that encourage thinking through systems. Yet these designations rather qualify an emerging paradigm (Capra, 1997; Morin, 1977), a way of conceiving our

relationship with the world and, consequently, a way of producing knowledge (Kuhn, 1962). Since the second half of the 20th century, a growing scientific community has endeavored to outline the contours of this complexity paradigm (Morin, 2005), which undoubtedly goes beyond the mere development of a systems theory. The challenge lies in appropriating the system as a new interpretative framework for the living and non-living world, and not merely as a topic of inquiry. As Arnold and Wade (2015) summarize, this approach is a system of thinking about systems. This section briefly explores the genesis and key principles of this emerging paradigm, as a prelude to its application to the learning organization.

2.2. SYSTEMS PARADIGM TO OVERCOME CARTESIAN DETERMINISM, REDUCTION AND DISJUNCTION

The systems paradigm originally emerges from a critical standpoint of the analytical paradigm, also referred to as Cartesian thinking, which has dominated the Western world since the Renaissance (Le Moigne, 1994; Morin, 1977). Operating under cartesian principles, the analytical perspective emphasizes the importance of doubt, rationality and deduction. System thinkers venture into a critique of the foundations of analytical thinking, the conjunction of doubt, rationalism, and deduction being reinterpreted as a deterministic perspective of the world, where knowing the causes of a phenomenon would suffice to understand and predict it (Ackoff, 1999). Similarly, decomposition is seen as a reduction of phenomena, implicitly assuming that the relationships between elementary particles can be neglected to grasp the phenomenon (Morin, 1977). Moreover, this emphasis on decomposition has led to disciplinary specialization (Von Bertalanffy, 1973; Morin, 1977), so that no scientist possesses an overall view of a phenomena. For instance, modern science tends to treat the human being separately as an arrangement of elementary particles in physics, as a set of cells produced by genetic code sequences in biology, or as a socialized being whose behavior is moderated by cultural norms in sociology (Morin, 1977). The segmentation of disciplines compels scientists from all backgrounds to independently seek the same general laws guiding these complex systems, without the prospect of cross-fertilization (Von Bertalanffy, 1973). Determinism, reduction, and disjunction: here lies the interpretation of Cartesian thinking proposed by system thinkers (Morin, 1977).

Undoubtedly, the Cartesian paradigm fulfills a promise: to explain deductively what can be deduced; to identify the causes of phenomena with identifiable causes, and to simply explain what can be explained simply, through linear causal relationships. It thus allows the understanding of ordered elements, whether simple or complicated (Snowden & Boone, 2007). Yet its weakness lies in its inability to recognize that more and more phenomena, qualified as complex, cannot fit these criteria, and thus mismatch this mode of knowledge production. A new paradigm is required to pave the way for an 'Age of the System' (Ackoff, 1999).

2.2. KEY PRINCIPLES OF THE SYSTEMS PARADIGM

The systems paradigm asserts itself as an approach dedicated to "now understand any phenomenon perceived and conceived as complex by rejecting simplification, mutilation" (Morin, 1977; p.46). It would be wrong to consider this paradigm as unified. Seminal systemic works converge notably in their denunciation of Cartesianism but strive for the invention of a science of systems in distinct ways (P. Checkland, 1999; Hammond, 2002). Yet despite the heterogeneity of approaches, systems thinkers present convergent assumptions on systems' properties (Mingers & White, 2010). First, the literature reveals relatively similar definitions of the system, as a unit relying on interactions between elements (Ackoff, 1999; Morin, 1977; Le Moigne, 1994; von Bertalanffy, 1973), organized to attain a purpose (Meadows, 2008), within an environment (Lecas, 2006). Second, in all substreams, the notions of interdependence, teleology, openness, and emergence constitute key principles guiding systems' representations.

2.2.2. A main focal point: interdependence

The term 'system thinking' can intuitively be interpreted as a perspective somewhat distant from action. However, systems thinking is, on the contrary, a way of understanding the world through the study of behaviors and actions, as highlighted by the first key principle: interdependence. The system paradigm calls for understanding the interrelationships between elements as the focal point. If we consider a system, those relationships occur within the system, between the elements constituting its parts; between the parts of the system themselves; between the parts and the system as a whole; and between the system and the supra-system(s) it belongs to. In other words, interdependencies are multiple and reflect a hierarchy of systems organizing

themselves like nested Russian dolls (Boulding, 1956). A holistic perspective precisely invites awareness of the world as a complex interweaving of interconnected systems.

The term 'interdependence' implies recognizing a plurality of relationships between elements. Systems can, of course, be fueled by causal and linear relationships, but systems thinking also places emphasis on recognizing the existence of loops (Ackoff, 1999). The concept of feedback loop, a cornerstone of systems thinking, comes from seminal works in cybernetics (e.g. Wiener, 1948) and has been promoted by Senge (1990). These loops are circular arrangements connecting multiple elements: an initial cause leads to effects, which lead to subsequent effects, until an effect comes back to influence the initial cause (Capra, 1997) – so that causes and effects ultimately intertwine (Morin, 1990). These circular relationships sometimes allow the amplification of the system, accentuating the recurrence and magnitude of the initial cause (amplification loops), or the regulation of a of the system, counteracting the initial cause to inhibit certain properties (regulation loops) (Ackoff, 1999; Senge, 1990). This recursivity is at the heart of the difficulties in operationalizing these systemic loops, whose contours are hard to perceive. This difficulty is compounded by that of temporality: due to a 'delayed effect' (Senge, 1990), the effects regularly materialize over a long period, complicating the identification of feedback loops (Meadows, 2008; Sterman, 2002).

Systems thinking is undoubtedly a language of action, intertwining behaviors in circular patterns. It thus requalifies the elements of the system as 'actants,' designating anything emitting or receiving an action. In this regard, the nature of actants can be invariably human but also non-human, considering that tools, devices, and objects can also be vectors or be influenced by actions (Latour, 1991; Morin, 2005). Action is shared, distributed among several actants, so that the actant cannot be extracted from its 'field of force' (Latour, 1991). Thus, interrelations, behaviors, loops, functions, and actants constitute the necessary grammar for the application of the principle of interdependence.

2.2.2. A prospective orientation: teleology in systems thinking

The systemic approach involves teleology, i.e., the study of the purposes pursued by the system (Ackoff, 1999; Checkland, 1988; Von Bertalanffy, 1973). Teleology involves questioning the 'why' of the phenomena under study (Lecas, 2006; Le Moigne, 1994). The elements forming

our reality occur with purpose, requiring the adoption of a prospective view of the world rather than a retrospective one (Capra, 1997). Historically, this principle represents a refutation of cartesian causal determinism, borrowed from philosophers (e.g. Aristotle or Leibniz). According to von Bertalanffy, "teleology is the nomothetic dependence of a present state on a future state, and it is not more anthropomorphic and not less scientific than causality, which asserts nomothetic dependence on a past state" (1973). However, systemic thinkers do not dismiss causality from scientific interpretation (Ackoff, 1999); on the contrary, it is essential to examine all patterns of interactions, linking causes, effects, and purposes.

The systems paradigm unveils several rules regarding purposes, qualifying their nature or dynamics. Firstly, it recognizes different types of purposes depending on the system's inner nature. According to Ackoff and Gharajedaghi (1996), social systems stand out due to the existence of multiple purposes compared to mechanical and living systems: the purpose pursued by the system's parts, the purpose of the system as a whole, and the purpose of the supra-system in which the system participates. These multiple levels arise from the fact that social systems are made of elements with intentionality, such as individuals or collectives, which leads to the pursuit of different aspirations (Atlan, 1979). The purpose pursued by an individual may, therefore, conflict with the purpose of the system, oriented towards its self-building and self-preservation, constituting a second rule of teleology: purposes may diverge. A third rule is the equifinality of systems, also called isotelesis. Equifinality implies that two open systems, with different means, may pursue the same purpose—thus contradicting any deterministic assumption (von Bertalanffy, 1973). Conversely, different purposes can be unfolded by systems with similar means. Based on these rules, systemics invites the interpretation of how "systems finalize, self-represent, and memorize their actions and projects in substrates they perceive as complex" (Le Moigne, 1994).

2.2.3. The scale of systems: openness and supra-systems

A third recurring notion in systems theory is that of openness. In seminal works, openness is conceived as a holistic conjunction of the system and its environment. The analytical paradigm tended to completely exclude the notion of environment, due to its overemphasis on causal determinism: if only causes are necessary to explain a phenomenon, then the environment plays no role as such (Ackoff, 1999). Conversely, teleology encourages considering the system's

contribution to what is external to it (Ackoff, 1999). However, the notion of environment itself can be deemed restrictive, as it is intuitively used to refer to a set of exogenous factors that do not concern the system much. In systems theory, this environment will be rather qualified as a 'supra-system' in which the considered system is fully embedded and to which it contributes—making it impossible to address the system without its supra-system (Boulding, 1956; Le Moigne, 1994). Although interpretations of this supra-system vary, the notion of openness unanimously takes on the meaning of permeability: it encourages extending the reasoning of interdependence and teleology beyond the system boundaries (Le Moigne, 1994).

The principle of openness must respond to a double injunction, inherently paradoxical: it is illusory to claim to understand the system without apprehending the supra-system it encompasses; but it is also unthinkable to fully grasp the supra-system, which itself is the system of a larger supra-system, and so forth. Comprehensive holism is an intellectual impasse: with humility, thinkers thus posit the incompleteness of a science of systems (Ackoff, 1999). How, then, can we apply the principle of openness? Epistemologically, the responses oscillate between constructivism and interpretivism. Some authors subscribe to an ontology of the world as a fluid continuum (Meadows, 2008): in this perspective, the system and the supra-system are the researcher's constructions of the mind. In other words, what is considered a system will vary depending on the observer involved. However, other authors believe that certain criteria guide the delineation of systems, especially the identification of semi-autonomous patterns (Luhmann, 2018; Simon, 1969). Therefore, the degree of interdependence foreshadows the identification of systems (Lecas, 2006; Simon, 1969). In any case, system thinkers acknowledge that delimiting system boundaries is intrinsic to the observer's intention (Morin, 1977; Sterman, 2002; Le Moigne, 1994). In this regard, characterizing the openness of the system must be self-reflective: awareness of the researcher's guiding intention is a prerequisite.

2.2.4. Emergence as the cornerstone of systems

Emergence characterizes phenomena present at the system level, although absent at the level of its constituent parts (Boulding, 1956; Capra, 1997; Snowden & Boone, 2007). As a result of the interdependencies, new behaviors emerge in an unpredictable manner, affirming the idea that the system is irreducible to its constituent parts (Clayton & Davies, 2006). Irreducibility, unpredictability, and novelty thus constitute the three facets of emergence. Life, or mind, serve

as illustrative examples of this phenomenon, resisting any explanation based on the aggregation of components. Emergence thus constitutes the pinnacle of the critique of causal determinism among systems thinkers. This concept is succinctly summarized by a widely embraced adage in systems literature: 'the whole is more than the sum of its parts' (von Bertalanffy, 1973). The non-summitive combination of interdependencies endows the system with distinctive, idiosyncratic properties that are perpetually reconfigured (Morin, 1977). Furthermore, Morin extends this reasoning by specifying its theoretical counterpart, i.e., that the whole is also "less than the sum of its parts" (1977). Indeed, the system inhibits certain properties of its parts to achieve overall coherence. The potential of a part is intrinsically reduced through its relationship with other parts, allowing the expression of only certain behaviors. In other words, the system produces and is produced by emergence but also constrains the behaviors of its constituent elements.

Emergence constitutes the "living force" of the system (Donnadieu & Karsky, 2002) and allows three functions to operate: self-production, regeneration, and permanent reorganization (Morin, 1977). Self-production, or autopoiesis (Luhmann, 2018; Varela et al., 1974), is the process that perpetuates the system in an infinite loop, where beginning and end come together: it refers to the system's ability to self-maintain. Regeneration is a renewal function, allowing parts of the system to change without jeopardizing its viability. For example, the human body constantly creates new cells. Finally, permanent reorganization is a regulatory function that compensates for the inevitable disorganization of the system (Morin, 1977). Yet it would be inaccurate to view these patterns linking behaviors, emergence and functions as mechanistic, coherent ones, considering that emergence inherently creates disorder. The system involves antagonistic and conflicting interactions, albeit necessary: one cannot "reduce this antagonism under penalty of destroying the system itself" (Donnadieu & Karsky, 2002; p.27). Amplification and regulation loops coalesce in a whole marked by dualities, but without hindering the system's overall maintenance. This ability of the system to combine antagonism, conflict, and mutual reinforcement is a property termed "dialogism" (Morin, 1977).

3. RE-ENGAGING WITH A SYSTEMIC PERSPECTIVE OF THE LEARNING ORGANIZATION: 7 PROPOSITIONS TO ADVANCE RESEARCH

In the literature, Senge's (1990) work has been identified as part of the broader systems paradigm, considering his endeavor to deepen how managers can appropriate systems thinking as a reflexive tool. Yet we argue that his approach does not entirely allows to embrace a fundamental systemic perspective of the learning organization as a topic of inquiry, paving the way for the resurgence of analytical pitfalls. Building on Senge's premises, we see an opportunity for the academic community to develop a new approach to the learning organization, fundamentally systemic, shedding light on how it dynamically unfolds. We thus investigate how researchers can fully adopt this complex systemic lens in their attempt to theorize the learning organization. We offer 7 theoretical and methodological propositions to advance research. These propositions are not understood as testable hypotheses through quantitative studies, but rather as opportune research guidelines to be further consolidated. We begin with proposals outlining ontological and methodological precautions before thoroughly investigating how to systemize the learning organization.

3.1. CONSTRUCTIVISM, RELEVANT SYSTEM AND OPENNESS

Embracing the system paradigm requires cautiousness to reach epistemological and methodological robustness (Lecas, 2006; Simon, 1969). Clarifying the researcher's intention and defining a bounded research question, in line with a constructivist approach, is the prelude for the delineation of an open, relevant system for the learning organization.

3.1.1. Understand the researcher's intention

The system paradigm calls for a reflective and constructivist account of the researcher's intention, as it shapes the representation of the system. In the first part of his book, Senge introduces the learning organization as a never fully accomplished purpose, attainable only through constant efforts to master the five disciplines (Senge, 1990) – which are themselves never fully achieved. Therefore, the development of the five disciplines is an ongoing process, aiming for this never-fulfilled Holy Grail (Senge, 1990; Finger & Brand, 1999; Fillion et al., 2015). Doing so, he primarily offers an ideal type of the learning organization, as a promising orientation for practitioners to tackle complexity. Yet, in his work, Senge also intends to depict how managers practically navigate, and sometimes fail, on the road for the learning orientation,

hence implicitly questioning its emergence and challenges. We thus observe diverse intentions followed by Senge, building upon an idealistic ontology of the learning organization.

The intent presents a tremendous impact on the system modeling, designed to emphasize interactions, and interdependencies. As Le Moigne (1994) suggests, "modeling is a teleological act", oriented by a bounded research question. In an ideal type model, the emphasis is directed toward the understanding of mutual reinforcement and amplification loops. The system reveals ideal mechanisms, where all emerging difficulties can be tackled easily without jeopardizing the system structure, nor transforming it. Therefore, it purposefully puts at distance other topics of concern for researchers, such as the steps of moving toward the learning organization. In this second orientation, the actants, variables, and behaviors enacted might be more diverse, unfolding a wide panel of antagonistic, conflicting interactional patterns and loops. Similarly, if the researcher intends to understand the barriers to the unfolding of the learning organization in a specific case, his contextualized study will deliver a considerably different systemic model, designed to emphasize leverage points. In a landscape where grand challenges loom large, it appears also opportune to delve into how the learning organization navigates amidst profound uncertainty, perhaps even serving as a catalyst for addressing socio-environmental concerns. Likewise, a dedicated exploration of the symbiosis between the learning organization and sustainability promises to unveil bespoke models. Accordingly, we presume that a holistic, systemic understanding of the learning organization can only be achieved through a plurality of efforts in modeling organizational patterns – each one bringing more knowledge to the main concept. Doing so, the systemic approach reminds the pitfalls of broad analytical descriptions, that sometimes fails to delineate the exact space of contribution.

> ***Proposition 1****: the comprehensive, systemic understanding of the learning organization requires several systemic modeling efforts, each one being dependent on the researcher's main intention. Any endeavor toward systemic modeling must be preceded by an elucidation of the author's intent.*

3.1.2. Delineate relevant open systems

The delineation of the learning organization as a system is puzzling for researchers. Senge's works suggest that, from a problem-solving perspective, the size and shape of this system might

vary depending on the problem we hope to tackle. Accordingly, the system might focus on a department, a combination of departments, or the broader industry, as long as it allows for the identification of leverage points (Senge, 1990). Beyond this observation, Senge's work seems to intertwine the search for general laws for the ideal learning organization and the problem-solving approach of hard systems thinking on more contextualized case studies (Caldwell, 2012) – without highlighting how these orientations presume two different delineations of systems and supra-systems. As a result, the characterization of the supra-system is confined to noting worldwide generic transformations, such as increasing competition from emerging countries, a challenged meaning of work among younger generations, or the observation of "systemic breakdowns" (Senge, 1990) as the ecological crisis.

In systemics, this idea introduced by Senge refers to the "relevant system" (von Bertalanffy, 1968; Ackoff, 1999), i.e. the adequate level of system required to apprehend our main inquiry. To fully embrace the system paradigm, the researcher should interdependently clarify his intention and delineate a relevant system and its supra-systems as coevolving entities. As suggested by Morin (1977), any observed phenomenon is in its environment as much as the environment is in this phenomenon – the dissociation of the two inevitably leading to reductionism. Similarly, according to Ashby's law (1956), the complexity of a system is commensurate with the complexity of its environment. Moving beyond generic assumptions requires evaluating the networks of mutual dependencies that connect the learning organization with elements intuitively perceived as external, the nature of which depends on the research question. Even an ideal-typical representation of the learning organization cannot confine the analysis to the organization, as it would systemically entail regarding it as a closed system. The complexity of the system does not solely arise from the mobilization of actors towards the five disciplines: it is nurtured by the complexity of the supra-system, namely the rootedness of these actors in other social systems, the determinants of which remain to be established.

Conversely, systemic thinking also prompts an investigation into how the learning organization contributes to this supra-system, a question largely overlooked. What is the purpose of being a learning organization? Senge's work mentions fragmentarily economic performance, as well as the solving of social and environmental issues, without further demonstration. As purpose intimately depends on the system under scrutiny, the system paradigm calls for more robust, but also more contextualized studies, where both the researcher's intention and the learning

organization's specificities might shape the selection of relevant supra-systems dynamics. Cumulative case studies, in this regard, seem more adequate than comparative ones, considering that applying the same systemic methodology to diverse organizations would never end up sizing similarly organizational systems (and supra-systems).

> ***Proposition 2****: the definition of the relevant system (and its supra-system) for the study of the learning organization strongly depends on the researcher's intention and the learning organization(s) under scrutiny. The researcher must therefore devote effort to testify the adequacy between the research question and the delineation chosen.*

3.2. PURPOSEFUL SUBSYSTEMS, INTERDEPENDENCIES, AND ACTANTS

Systems thinking encourages us to shift our focus from the learning organization's dimensions to consider more broadly the interactional patterns between them. However, it must avoid extreme holism, asserting that everything is interconnected in a more or less arbitrary manner, and further investigate the foundational relations and subsystems that constitutes the structure of the learning organization.

3.2.1. Understanding LO's dimensions as finalized, semi-autonomous, and interdependent subsystems

Senge's work substantially relies on the description of the five disciplines, the mastery of which requires continuous efforts. A lengthy exhortative discourse on appropriate practices punctuates the portrayal of these disciplines. Applying a systemic approach would lead to reconsider this quest for each discipline as a finalized subsystem, inhabited by numerous interconnected behaviors and practices. More than the description of isolated practices, it is these interrelations that should be at the heart of further investigation to understand circular patterns and their contribution to the sought-after purpose – in this case, the mastering of disciplines.

In this regard, the ideal type proposed by Senge, based on feedback from practitioners, acknowledges preliminary interdependencies, yet it does not organize this knowledge into a holistic whole. We may take the example of personal mastery, which is associated with a list of variables: personal vision (constantly clarifying what is important to us), clarity (analyzing

daily reality lucidly), creative tension (observing a gap between personal vision and reality). Senge's description can be thought of as a system, as done briefly in the Appendix 1. Personal mastery then appears as a circular amplification loop where personal vision and clarity are the two necessary conditions for creative tension, enabling the implementation of actions, thus continually enriching our understanding of reality and the goals we attribute to ourselves – with varying timeframes. In this way, the system approach helps understand how personal mastery constitutes a subsystem that is both semi-autonomous – justifying the identification of this discipline as distinct – and self-reinforcing.

Moreover, this modeling effort makes tangible the interrelations between the variables of this subsystem and other subsystems, such as mental models and systemic thinking. Beyond the incantatory discourse on the necessary combination of the five disciplines, the system approach allows for greater precision by pinpointing the behaviors that underpin this interdependence. It thus calls for a more robust investigation into how these behaviors are enacted and form a structure linking the disciplines, beyond oversimplifications.

> ***Proposition 3****: Modeling the learning organization's disciplines as finalized and semi-autonomous subsystems helps understand the structure of behaviors underpinning them and connect the dimensions together.*

3.2.2. Distinguishing influence relationships and finalized patterns

The systemic understanding of disciplines, as finalized subsystems, constitutes the prelude to a rigorous investigation into the nature of the relationships and patterns linking these parts together in a whole. In this regard, Senge's work argues for a strong interdependence, ostensibly presenting all these disciplines as combined. For instance, according to Senge (1990), personal mastery might lead to disorder without a shared vision and the mobilization of similar mental models by organization members. In other words, these three disciplines operate as necessary conditions to move towards the learning organization. Similarly, the shared vision is presented as not truly contributive without the involvement of systemic thinking, relegated to "a beautiful representation of the future" (Senge, 1990, p. 20). Senge further suggests that the disciplines are not necessary conditions for the same learning capacities, but all of those learning capacities contribute to the learning organization. Overall, we observe that these patterns of contribution

do not necessarily imply that the disciplines inherently depend on each other: they are jointly necessary for the pursuit of a purpose.

Thus, this pattern proves significantly different in terms of the nature of the relationship, influence, and dependence of one part on another. As a counter example, Senge explicates team learning as enhancing our ability to broaden our representations beyond individual boundaries, reinforcing the ability to think in systems. Team learning, therefore, exerts a direct positive influence on systemic thinking, analogously to the other three disciplines. Conversely, in Senge's framework, systemic thinking nourishes the other four disciplines through direct influence relationships – foreshadowing its emphasis as a cornerstone of the learning organization. It is precisely these influence relationships that are lacking in Bui and Baruch's (2010) model, that does not leave room for mutual influence between the disciplines.

The system approach precisely allows confronting this distinction between direct, or even mutual, influence relationships and broader patterns contributing to purposes, through modeling. In this case, it also encourages researchers to question the influence relationships between disciplines not explicitly addressed by Senge, whose diagram 1 began to outline the contours.

> ***Proposition 4****: Modeling the learning organization's disciplines as subsystems allows understanding both their contribution to the purpose of the whole, as necessary conditions, and to the purpose of other parts, as exerting a unidirectional or mutual influence on each other.*

3.2.3. Understanding the plurality of actants

In line with other systems thinkers, Senge calls for the necessary transcendence of anthropocentrism for the development of new theories adapted to grand challenges (1990, 2008). Human beings must be thought of within the fabric of relationships that connect them to the world, and not as external observers whose free will allows them to escape the laws of nature. However, Senge's work struggles to fully embody this intention in the study of the learning organization.

In Senge's view, the novelty of the disciplines lies precisely in their "personal nature", compared to other management theories (Senge, 1990). The embodied dimension of this approach focuses on the mindset, capabilities, and aspirations of individuals, whose behaviors constitute the matrix of the learning organization. While this approach has merits, linking individual and collective transformation, it deviates from a holistic understanding of actants participating in these behaviors. Tools, devices, spaces, resources, and surrounding elements do not play a role as such, leading to the formulation of a proposal imbued with anthropocentrism and somewhat disconnected from the materiality of actions. In contrast, the systemic approach invites the reintegration of all these plural actants contributing to the activation of behaviors, acting as a necessary condition in an interactional pattern or influencing other actants. This observation aligns with recent calls from the academic community, urging to transcend pervasive anthropocentrism in addressing sustainability challenges (Ergene et al, 2018).

> ***Proposition** 5: Modeling multiple actants, both human and non-human, allows understanding precisely how they shape and are shaped by interdependent behaviors within the learning organization system.*

3.3. EMERGENCE, FUNCTIONS AND DIALOGISM

The systemic approach is particularly informative as it enables the understanding of the inherent complexity within the learning organization system, manifested through the enactment of emergencies. These emergencies not only sustain the system's functions but also derive sustenance from its dialogic variety within.

3.3.1. Emphasizing emergence as contributing to the system's functions

Understanding the whole cannot do without a reinvestigation of the concept of emergence, prompting consideration of unpredictable and novel elements breaking into interaction patterns. At times, Senge's work appears to run counter to the concept of emergence, notably by considering that the capacity and vocation to learn within an organization cannot surpass those of its members. It thus leaving little room to investigate how the learning organization as a system self-organizes to enhance the learning capacities, beyond the involvement of its parts.

Sometimes though, Senge also characterizes the intangible, nearly magical, ability of teams to create what he calls "generative learning". Through generative learning, the learning organization expands its propensity to continually learn and create its own future, in an autopoïetic pattern (Senge, 1990; McGill et al, 1992).

The systems approach paves the way for a deeper understanding of emergence and how it sustains the learning organization functions: self-reproduction, regeneration, and self-organization. In that sense, although barely defined, we observe "generative learning" as the enactment of the learning organization's self-reproduction function, and acknowledge that how this function unfolds practically requires further inquiry. These works prove somewhat lacking, not truly providing concrete illustrations of the emergencies contributing to this self-reproduction, beyond the identification of an intangible substance. Similarly, the literature does not yield much insight into the understanding of the regenerative function (i.e., what occurs when elements of the learning organization are replaced by others, such as individuals) nor the self-organization one (i.e. how the learning organization tackle disorder by displaying new structural rules). Yet characterizing emergence is probably the most challenging facet of systems modeling, as it requires both understanding the organization's main specificities and focusing on what is left aside in traditional analytical studies.

Contextualized studies, going beyond oversimplistic and normative models of the learning organization, are indeed a prerequisite to assess emergence. It is all the more necessary as, due to the equifinality principle, the learning organization might actually unveil multiple patterns to tackle the same purpose, hence displaying diverse novel, unpredictable behaviors. More fundamentally, studying emergence might question whether the dimensions identified by Senge, namely the five disciplines, are in any case required to reach the learning organization.

> ***Proposition 6****: Focusing on novel, unpredictable behaviors in the system of learning organization allows for a deeper understanding of generative learning as an emerging function, among many others.*

3.3.2. Embrace a dialogical perspective of the learning organization

The system approach provides the keys to a dialogical understanding of systems. According to Morin (1977), dialogism clearly invites us to observe phenomena as inhabited by plural, contradictory, and convergent logics and tendencies—primarily recognizing the system's ability to maintain its unity while sustaining the duality of these logics. Senge's work rather presumes the strong alignment between team members, in terms of mental models, as a desirable purpose, hence perpetuating a dialectical vision of representations.

In the system paradigm, it is essential to recall that variety is a prerequisite for ensuring the system's maintenance, so that the eradication of tensions and contradictions resembles a significant impoverishment of the system, reducing it to a mere mechanistic operation. In management, the normative vision of best practices often conceals a desire to absolve encountered issues and tensions, without measuring their diverse contributions to emergence. Senge emphasizes on multiple occasions that today's problems often turn out to be yesterday's solutions: in other words, problems inevitably move within the system. The counterpart to this assertion, indeed confirmed by other systems thinkers, is ultimately that conflicts fuel the system's movement and provide the variety necessary for its growth. Emergence relies, and also provokes these antagonistic situations, initially perceived as problematic.

Accordingly, systemic modeling not only allows us to comprehend interaction patterns and emergent functions but also enables us to identify how two variables can simultaneously oppose and mutually reinforce each other. As an example, as highlighted by Senge (1990), the implementation of the five disciplines stands in direct contrast to the exercise of tight managerial control over employees, who are expected to unleash their individual potential. However, one could argue that the adoption of the five disciplines may also be a reactive, emerging response by employees to such directive management, as an act of resistance. The systemic approach thus encourages exploration of the complexity of relationships between variables, transcending presupposed binary oppositions.

> ***Proposition 7****: Focusing on novel, unpredictable behaviors allows for the identification of dialogical relationships between dimensions and variables, nurturing the variety of the learning organization.*

4. DISCUSSION AND CONCLUSION

Senge's approach already highlights the potential of systems thinking, its key principles and contributions to the day-to-day management of organizations. However, paradoxically, this framework is not sufficiently mobilized to apprehend the learning organization as a phenomenon. Accordingly, the definitional rigor of the learning organization's dimensions is not the primary issue; rather, it is the coherence between the principles asserted by Senge and his conceptualization approach. This article aims to address this theoretical gap by invoking a fundamentally systemic approach to the learning organization, supported by seven theoretical and methodological guidelines for the scientific community. Doing so, we hope to contribute to the field of the learning organization in four ways.

4.1. OVERCOMING THE ANALYTICAL, ORGANIZATION-CENTRIC, AND NORMATIVE VIEW OF THE LEARNING ORGANIZATION

Our interpretation of Senge has led us to recognize the pitfalls of a analytical, organization-centric, and normative vision of the learning organization. We argue that our seven propositions fully address this critique. Indeed, the analytical, reductionist vision, imbued with causal determinism, is bypassed by repositioning interdependencies as the focal point of the conceptualization approach. These interdependencies form purposeful sub-systems, where causes and effects merge, justifying the relevance of a teleological approach. The organization-centric vision is swept away by reembedding the system in its supra-system, not exhaustively, but following the principle of the relevant system. This supra-system is both a dependency for the learning organization, as its existence is only possible within it, but it also forms its raison d'être, namely contributing to it. Finally, the normative vision is overcome by identifying emergence phenomena in dialogic systems, inhabited by novelty and conflict. To the pitfalls of the analytical approach, our guideines oppose a more comprehensive, system-centric approach to the learning organization. They highlight both the potential and the challenge posed by systemic modeling, understood as a substantially iterative process, where each of these propositions is continually evaluated.

It is worth noting that our propositions do not necessarily contradict Senge's approach. Instead, they invite us to look at the same dimensions through a different lens. These propositions also reveal potential to address other criticisms raised against Senge. Some authors highlight the elusive dimension of his works, struggling to precisely characterize the practices and processes

that materialize the learning organization (Caldwell, 2012; Fingers & Brand, 1999; Anders Örtenblad, 2007; Rupčić, 2020) – but do not really offer alternative approaches (Örtenblad, 2019). By proposing the investigation of behaviors underpinning the learning organization, systems thinking offers robust and precise contributions to these inquiries.

The transposition of systemic approaches to the theorization effort satisfies a criterion of coherence: it aligns researchers' approach with managers' systemic vision, as conceived by Senge. As such, our article fully aligns with the primary ambition of the system paradigm: adopting a shared language to embrace the complexity of the world (Von Bertalanffy, 1973; Le Moigne, 1994).

4.2. SURPASSING THE FRAGMENTATION OF THE FIELD THROUGH A SYSTEMS GRAMMAR

It is commonplace to consider the systemic paradigm as a refutation of causal determinism and reductionism. However, one should not dismiss the third pitfall of the Cartesian approach: the disjunction of knowledge (Morin, 1977). In a scientific world plagued by disciplinary compartmentalization and internal disputes, systemic approaches calls for the conjunction of theories, both between and within disciplines.

This call resonates positively within a field of research marked by fragmentation. The almost simultaneous publication of several seminal works, offering various definitions of the learning organizations, have laid the groundwork for a rather disparate field (Easterby-Smith & Lyles, 2011). Since the 1980s, several generations of authors have attempted to delineate the inner dimensions and properties of this concept (Besson, 2023) and have acknowledged the difficulties of navigating between different theoretical approaches (Easterby-Smith & Lyles, 2011). Facing this impasse, Örtenblad (2019) highlights two possible paths within the field: select a well-defined concept within established substreams, revolving around influential authors (such as Senge, Watkins and Marsick or Garratt); or favoring an encompassing, "umbrella" approach, requiring further clarification on how integration can occur and who is legitimate to do so.

We argue that in this regard, systems thinking offers undeniable qualities. By proposing a grammar based on interdependencies, teleology, openness, and emergence, systems thinking

aims to provide researchers and practitioners with a generic vocabulary transcending theoretical idiosyncrasies. With some ontological and epistemological precautions, as specified in our propositions, engaging in systemic approaches offers the possibility of identifying similarities between the different perspectives to the learning organization. For example, similarities in interactional patterns, reinforcement loops – regardless of the preferred labels to describe the nature of the actants. By making interdependencies the focal point, it encourages an encompassing consideration of movement and dynamics within the learning organization, depicted through a transdisciplinary grammar. Therefore, we believe that systems thinking has the potential to overcome, at least partially, the fragmentation of the field and contribute to current inquiries into possibilities of integration.

Beyond divergences in the field, the systemic approach calls for a disciplinary decompartmentalization. The concept of learning is particularly rich in this regard, intuitively opening the door to cross-fertilization with education sciences, sociology, philosophy, or neuroscience. Management science historically pursues a tradition of integrating knowledge and theoretical frameworks from other disciplines. However, beyond many interdisciplinary efforts, the systemic approach rather calls for transdisciplinarity, paving the way for new studies embracing diverse knowledge.

4.3. ADOPTING A NEW METHODOLOGICAL POSTURE: CO-CONSTRUCTING WITH PRACTITIONERS

While Senge's works have evident limitations, they merit recognition for relying on pragmatic empirical contributions, specifically feedback from practitioners. Our systemic approach encourages delving into this fertile ground, albeit in a more robust scientific manner, through the co-construction of system modeling with practitioners.

The way we approach systems thinking reveals a constructivist posture, where the modeler's intention is understood as highly influential on the system's representation. In this approach, a problem is not discovered but rather constructed (Le Moigne, 1994), thus requiring questioning who is behind this construction. To ensure that the system's representation is able to grasp the complexity of a specific situation and initiate action, systems thinkers often advocate for co-modeling with field actors, in an iterative fashion. For instance, the soft system approach relies

on a long tradition of involving practitioners in defining the problem and modeling (Ackoff, 1999; Checkland, 2012). The plurality of perspectives is a richness to partially overcome the biases of the single observer.

Engaging in a systemic approach thus implies subscribing to the goal of producing mode 2 knowledge (i.e. situated and contextualized knowledge), inducing a significant inflection in the field of the learning organization. In management, discussions on this mode 2 knowledge have long stirred the scientific community (MacLean et al., 2002), converging towards the need for an applied science, useful to practice and oriented towards problem resolution. Concretely, the production of mode 2 knowledge calls for transdisciplinary research, contextualized application fields, heterogeneity of cases, researcher reflexivity, and social accountability (MacLean et al., 2002). Yet theorizing efforts of the learning organization sometimes struggles to produce this contextualized knowledge, pointing to generic typologies or practical, generic best practices (e.g. Örtenblad, 2013; Pedler & Burgoyne, 2017; Senge, 1990). Embracing the system paradigm might thus constitute a shift toward a more engaged, applied research in the field, where co-construction with practitioners brings additional knowledge.

4.4. LEARNING ORGANIZATION AS A PROMISING AVENUE AT THE TIME OF GRAND CHALLENGES

Senge's ambition is clear: to enable organizations to embrace the complexity of reality and adapt to the profound transformations in our contemporary world – economically, socially, and environmentally. However, due to its organization-centric approach, Senge's work has often been interpreted more as a new theory of management and leadership (Caldwell, 2012), somewhat disconnected from understanding these transformations. This observation is all the more damaging as grand challenges are experiencing a phenomenal surge in management literature, marking a significant turning point (Ferraro et al., 2015; George et al., 2016). Within this field, many authors suggest the potential of a systemic understanding of the ecological and social upheavals at play, as a better equipped approach to grasp the multiple interdependencies underlying complex phenomena such as climate change or planetary boundaries (Grewatsch et al., 2023; Kwakkel & Pruyt, 2015; Ricciardi et al., 2021; Williams et al., 2017). At a time when these issues are in the spotlight, we argue that our systemic proposals contribute to reinvesting

in the concept of the learning organization as relevant and re-establishing it in its original goal: understanding the phenomena of adaptation and learning in a uncertain and complex world.

This research direction seems even more promising as the concept of learning appears underexplored in the literature on grand challenges. Embracing a holistic perspective, these studies often reveal inter-organizational levels of analysis, where emphasis is placed on the negotiation and coordination processes among diverse actors, driven by often conflicting interests (Berkowitz & Grothe-Hammer, 2021; Jarzabkowski et al., 2018). While this approach has a certain appeal, it overlooks how organizations participating in these processes develop organizational capacities, particularly in learning. The ability of organizations to learn generatively and transform continuously remains an under-studied facet, risking reducing our perception to organizations acting only reactively in an uncertain environment. It seems opportune, therefore, to place the concept of learning at the center of debates on grand challenges, as it holds the promise of a radical transformation of our organizations.

The learning organization is an old concept that, despite extensive study, still faces obvious limitations, hindering the production of new knowledge. This article provides a promising new research avenue, based on the emerging paradigm of systemic thinking. The systemic approach to the learning organization is still in its early days and requires new empirical investigations that respond contextually to the challenges of our time.

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APPENDICES

Appendix A – Personal mastery as a system, based on Senge (1990)