
CAN PEOPLE UNLEARN? A REFLECTION ON THE CONCEPTUAL AND COGNITIVE FOUNDATIONS OF ORGANIZATIONS SYSTEMS THEORY

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Abstract. Organizational science literature frequently employs biological metaphors, likening organizations to organisms that not only strive for survival but also learn from experience. Yet, this accumulated knowledge can become obsolete as internal and external environments evolve, necessitating the abandonment of outdated beliefs and knowledge—a process termed "unlearning." Introduced by Hedberg (1981) and Nystrom and Starbuck (1984), unlearning is defined as the deliberate discarding of old knowledge to make way for new insights, especially crucial in hypercompetitive environments. Despite its growing relevance, the concept of unlearning lacks a clear, consistent definition and its distinction from psychological concepts like forgetting remains unclear. Our study aims to clarify unlearning by achieving three objectives: delineating how unlearning is defined across organizational literature, exploring its relationship with psychological concepts, and proposing a cognitively plausible definition of unlearning. We propose a multidimensional taxonomy of unlearning, argue for its unique position within cognitive literature, and offer a definition that facilitates empirically testable theories. This work seeks to refine the theoretical foundation of organizational systems by elucidating a concept critical to adapting in rapidly changing environments.

Keywords: Unlearning, Organization's Theory, Taxonomy.

1 Introduction

Organizational sciences have increasingly looked towards biology for inspiration and guidance in their research and study [63]. One of the most prevalent metaphors used is to view organizations as organisms, much like living creatures that must learn from their experiences to survive [4]. Adopting this view due to changes in both the internal and external environment of an organization, previous knowledge and beliefs held by organizations may become outdated, incorrect, irrelevant or even misleading [39, 21, 59]. From an evolutionary perspective, the characteristics that in t_0 allowed organizations to survive could be the same characteristics that in t_1 led them to extinction.

In this connection, it is often claimed in the contemporary organizational literature that in order to not only survive but also thrive in hyper-competitive environments, organizations must continuously improve and *unlearn* so-called *path dependencies* [40]. Path dependencies are self-reinforcing mechanisms that anchor the organisation to the past. To illustrate, consider the constant use of the QWERTY keyboard even though the Dvorak keyboard, for example, has been universally recognised as more effective and efficient. Or how Kodak continued to ground its core business on film despite the advent of digital photography. This view is supported by recent studies that have identified unlearning as a crucial organizational ability [62, 13, 23, 71, 40]. These studies suggest that unlearning is a dual process that involves the acquisition of new knowledge as well as the conscious abandonment of outdated constructs [26, 47, 62]. Through this process, organizations can adapt to changing circumstances and remain competitive in their respective industries.

The concept of organizational unlearning was first introduced by Hedberg [26] and later by Nystrom and Starbuck [47]. By introducing the phenomenon to the organizational discourse, these articles laid out the foundational ideas that would have later informed all subsequent theorizing and reasoning on the role of unlearning in organizational science. Even though the phenomenon has been examined and scrutinized from diverse perspectives, these initial articles defined one of the fundamental pillars upon which the phenomenon is based: the interconnectedness between organizations and an environment that progressively becomes more hostile, demanding, and dynamic [14]. Furthermore, scholars posited that when organizations acquire new knowledge, a dual process occurs wherein knowledge becomes outdated at the same rate as it is learned due to changes in the external environment [7]. In this connection, it has been argued that a complete understanding of a subject or concept requires not only the acquisition of new knowledge

but also the deliberate and conscious abandonment of outdated constructs. This process has been referred to in the literature as "unlearning". The phenomenon of unlearning has been generally construed as the intentional and mindful relinquishment of previously held beliefs, assumptions, and knowledge, leading one to reframe their understanding of, and perspective on, particular subjects or concepts. This notion of unlearning has since gained wide acceptance in organizational literature [53], particularly in recent years, as organizations navigate increasingly dynamic, unpredictable, and complex environments [46].

While the concept of unlearning has gained widespread use in the literature in recent years, it lacks a clear and precise definition, and existing definitions are often vague, imprecise, or contradictory [31]. The current body of literature on organizational unlearning has some gaps that require attention, and this work aims to address them in order to advance the theoretical foundations of this construct.

This article seeks to offer an overview of the various definitions and conceptualizations of unlearning found in organizational literature through a systematic review and analysis. It also aims to describe the connections between unlearning and related psychological concepts such as inhibition, interference, negative transfer, and forgetting [31], exploring their similarities, differences, and implications for organizational unlearning and change. Lastly, the paper endeavours to outline a cognitively plausible definition of unlearning, contributing to a more concrete and empirically testable understanding of the mechanisms involved.

By pursuing these three goals, this work intends to contribute to the understanding of a key concept in contemporary research on organizational systems and to possibly inform future research and practice in this area. We believe that this conceptual effort can have several payoffs even though the construct of unlearning, which characterized as unnecessary [31], is being continuously and increasingly used [46, 10, 34, 53]. This last fact does not in itself prove the robustness of the phenomenon, however, it denotes attention and interest from the academic community towards it. This, in our view, reinforces the need to strengthen the conceptualisation and empirical understanding of the concept.

2 Theoretical Background

The concept of unlearning, from the 1980s onwards [27, 26], has gained increasing attention in the academic debate [46]. Although the construct's

origins can be traced back to the texts of Dewey [16], it is only in the 1980s-90s that the concept was introduced in the organisational literature, where it eventually flourished.

Unlearning, in the theoretical framework offered by Hedberg, Nystrom and Starbuck [27, 26, 47], refers to the intentional and conscious discarding of old organisational knowledge in a way that does not hinder the acquisition of new knowledge. According to their view, corroborated by experiments in the field of psychology [47], for new knowledge to be learnt effectively, it must replace obsolete knowledge. This idea is based on the assumption that, although organisations do not possess the counterpart of the “delete” key on computers [31, 65] organisations do possess a memory that can be “removed”. However, the notion that both individuals and organisations can, and need to, “remove” previous knowledge or habits that inhibit the learning of novel knowledge and habits is not universally recognised and is the subject of a wide debate.

Other notions of unlearning have been proposed in the literature. Klein [36] defines the process of unlearning as the ability of organisations and individuals to replace old responses with new ones. [29] introduced a novel element into the debate, namely, the dimension of “challenge”. According to this view, unlearning is a process in which existing cognitive structures, including dominant beliefs and values, particularly those of top managers, are challenged. In the debate on unlearning, while some authors have tried to give it a systemic definition capable of embracing the organisation and the parts of which it is made up, others, simplifying, have instead concentrated on exclusively organisational aspects, thus leaving out the cognitive part of the construct to focus instead on the processual one [4, 17, 62]. Their analyses were helpful not only to make the concept more manageable, but also to introduce the idea that unlearning is a process that precedes learning, and that aims at clearing the path from old knowledge or routines that inhibit the acquisition of new ones.

The phenomenon of unlearning has also been analysed along the cognitive dimension. [30] defines it as a conscious and deliberate process of reflection and preparation for the abandonment of existing knowledge, values and/or practices. This definition was later refined and extended by [19]. In particular, the two authors defined unlearning as a deliberate act of forgetting that implies a conscious decision to abandon knowledge, values and/or practices that organisations deem outdated and therefore no longer effective. Finally, other authors argue how unlearning occurs when the visions, attitudes and concepts one possesses are placed under the scrutiny of reflection to be recognised and subsequently rethought [43]. All these authors have

apparently conflated unlearning with forgetting, which, however, does not involve the intentionality and awareness that characterise unlearning [34].

The discussion made so far highlights the fact that “unlearning” is a nuanced and multifaceted concept. Indeed, according to [32], unlearning should not be understood as a unitary and simple practice, but rather as the ability to gain and acquire alternative forms of knowledge and wisdom. Several authors, including [61], have pointed out that a comprehensive and unitary framework for understanding what organizational theory researchers talk about when they talk about unlearning is needed. Indeed, due to the lack of universally accepted conceptions of unlearning concerning both the construct and the process, the anecdotal evidence gathered from the community has made the process of understanding the characteristics concerning unlearning even more complex [9]. Therefore, although the concept of unlearning has been subjected to harsh criticism [31], the academic community seems to share a consensus regarding not only the need to unlearn but also the tracing of this process back to both the cognitive and behavioural spheres although it is impossible to gloss over the ongoing debate about how the process actually comes to life [53].

The scenario presented so far, composed of varied, intricate and different definitions which are difficult to disentangle, has exposed the concept to doubts and criticisms, and some scholars have even recommended that it be abandoned as a theoretical construct of organizational systems theory [31]. Even though previous works have made analogous remarks [36], we take this article [31] as an important step in the debate, as it provided compelling arguments for dropping any reference to unlearning. The main criticism made by the authors is that the concept of unlearning can be replaced by other, more familiar, psychological concepts without any loss of generality. Specifically, the phenomena that, according to the authors, can replace it, are *inhibition*, *interference*, *negative transfer* and *forgetting*.

One of the most debated overlaps in the literature is that between unlearning and forgetting [37]. However, unlearning cannot be equated with forgetting. The two differ from each other along a crucial dimension, namely, intentionality [34]. More specifically, forgetting is defined as the inability to recall something to mind that could have been remembered before instead, without this occurring intentionally. On the other hand, unlearning is defined as a deliberate process [62].

Interference typically refers to concurrent thoughts or processes that end up hindering one’s performance, reducing its quality [50, 51, 69]. Interference, however, cannot be equated with unlearning. In this case, the two constructs cannot be overlapped as they identify different parts of the pro-

cess called into question by unlearning. If anything, interference is a concept much closer to path dependencies [56]. To put it simply, interference is the impediment that must be overcome, and unlearning is the expedient that must be employed to do so.

The term “negative transfer” refers to the inhibition that stimulus-response processes impose on the acquisition of new information [22]. An effective example to understand how this phenomenon occurs can be found in the APA Dictionary of Psychology, which defines *negative transfer* as “a process in which previous learning obstructs or interferes with present learning. For instance, tennis players who learn racquetball must often unlearn their tendency to take huge, muscular swings with the shoulder and upper arm”. This kind of interference inhibits learning in new contexts and cannot be equated to unlearning. Indeed, negative transfer denotes the object that unlearning is supposed to target as it could be seen also in the definition reported. Indeed, to be effective, unlearning processes must target factors that play a “negative transfer effect” by preventing organisations, groups, and individuals from growing or evolving [5, 33]. This said, the concept of negative transfer may be assigned a role in the definition of organisational unlearning, as it points to how old knowledge or habits can interfere with the acquisition of new information. *Negative transfer* also emphasizes the importance of identifying and discarding outdated knowledge, values, and practices that are no longer relevant or effective. Indeed, it is crucial to recognize when past experiences or habits are influencing current decision-making and hindering progress, therefore, by unlearning old introjections of stimulus-response processes, organizations can create space for new knowledge and behaviours that better align with their current goals and strategies.

Finally, the last phenomenon that is juxtaposed with unlearning is that of *inhibition*, which is defined in the literature as the intentional or unintentional blocking or overriding of a mental process [48, 58]. Unlike unlearning, *inhibition* phenomena involve a temporary decrease in the influence of certain information or processes on other processes. One key difference between inhibition and unlearning in an organizational context is their focus. Inhibition is primarily concerned with reducing or eliminating negative behaviours or practices while unlearning is concerned with exploring and adopting new, more effective approaches. Inhibition is often used as a short-term strategy to deal with immediate problems while unlearning is a long-term strategy for promoting ongoing growth and adaptation. Moreover, from a cognitive perspective, while inhibition refers to the suppression of pre-existing responses or behaviours, unlearning involves the modification or elimination of existing associations between stimuli or responses.

This reconstruction of the theoretical debate on the concept of unlearning highlights the multifaceted nature of the construct, and the fact that the same term is used in senses and with purposes that significantly differ from one another. However, this sort of theoretical confusion does not imply that the concept is useless and vacuous: quite on the contrary, it calls for an elaboration of a more stable and precise definition of it, also considering that, as argued so far and contra Howells and Scholderer [31], the phenomenon of unlearning cannot be easily equated with other more traditional psychological phenomena. Providing a satisfactory and unifying definition is out of the scope of this paper, which, however, aims at taking a first step towards this ambitious goal. The strategy adopted in the rest of the paper will involve systematizing the existing views on the subject, drawn from a systematic review of the literature from 1981 to the present day, in a three-dimensional taxonomy. Each dimension concerns a distinct aspect of the unlearning phenomenon: who does the unlearning? What is unlearned? How does unlearning occur?

3 An Unlearning Taxonomy: Who?

Organizations are typically analysed at three levels of analysis: micro (individuals), meso (groups), and macro (organization) [67, 52, 15]. This approach is useful for several reasons. A multilevel perspective allows for a systemic approach to organizations, enabling one to observe organizational dynamics from different points of view and to identify interactions among them. At the micro level, one analyzes individual behaviours and their influence on the organization's well-being and productivity. On the meso level, the focus is on groups, on their structure, culture, communication, and decision-making processes. This allows for an understanding of how the organization consists of different political arenas [57] that interact with each other. Finally, at the macro level, one views organizations as organisms that move within a broader environment characterized by political, governmental, cultural, economic, and technological dynamics. This perspective allows for an understanding of external pressures that can modify the organization to adapt to its environment.

When it comes to defining the concept of unlearning, specifying who does the unlearning is clearly essential (under the assumption that unlearning is an activity, or a process, carried out by somebody or something). At least, it would be important to specify whether unlearning is a process carried out by individuals (micro-level), groups (meso-level), or entire organizations

(macro-level). However, it's difficult to find clarifications of this sort in the literature most of the time, in fact, the dimension involved is not specified. In addition to this, it is interesting to note that two dimensions are often mentioned within the same definition. For example, Newstrom [45] without specifying the actor of the process defines unlearning as “the process of reducing or eliminating preexisting knowledge or habits that would otherwise represent formidable barriers to new learning”. Yet, Becker [8] defines it as “the process by which individuals and organisations acknowledge and release prior learning” mentioning both the individual and organizational dimensions in the definition given.

This nuanced scenario is also returned by the distribution of definitions across the three levels. In fact, leaving out the vast majority of cases where the main actor of unlearning is not mentioned, we find that in the remaining cases, the dimension most frequently examined is the macro one, that is, which considers the *organization* as a whole as the main actor called upon by the process. Mehrizi and Lashkarbolouki [43] say that “unlearning refers to intentional practices organizations adapt to cope with their dependence on obsolete knowledge, processes and routines”, or again Cegarra-Navarro and Wensley [12] refers to unlearning as the “organization’s ability to prepare the ground for the creation and application of new knowledge”.

In evidence of this, the *meso lens* turns out to be the least used. The group dimension turns out to be difficult to investigate at the organizational level since tracing the boundaries of a specific group is often problematic because of the cross-cutting and cross-functional processes that now characterize most organizations. Starbuck [55] refers to unlearning as “a process that shows people they should no longer rely on their current beliefs and methods”, while Alas [2] says that during unlearning “people were expected to abandon their old ways of doing things”.

Finally, it is interesting to note that the microlens embodying *individuals* is also little used within definitions, often even making it part of definitions that simultaneously refer to the organization as a whole as previously seen.

As we have seen, in most cases, the “who” dimension called into question by unlearning is not mentioned, or, when it is mentioned, it refers to the organisation as a whole. Identifying the “who” doing the unlearning with the entire organization is, in some sense, a convenient choice from a methodological point of view. Indeed, the memory of organizations, unlike that of individuals, can be traced physically, for example through documentation, procedures, or the know-how of figures placed in key positions. These elements just mentioned represent a large part of what is called organisational memory [66]. Since they are tangible elements, often even attested by

documentation that is still on paper, they can be 'simply' removed through their physical elimination. Or, as in the case of top managers who perpetrate an obsolete way of doing things, they can be moved to another job or in extremis removed from the organisation. In light of this, it is therefore certainly easier to theorize and imagine an unlearning intervention than to do so by referring an individual to a group.

4 An Unlearning Taxonomy: What?

The second dimension identified here concerns the object of the unlearning process. For obvious reasons, one cannot understand what unlearning amounts to without understanding *what* is unlearnt. However, a wide variety of options can be found in the literature. More often than not, many objects are mentioned in the same definition.

Among the most frequently mentioned objects, we find *knowledge*. However, this term is often used without further qualification, making it difficult to gain a deeper understanding of what is really unlearnt. In particular, it is seldom specified whether the knowledge to be unlearnt is explicit or tacit. Other options include *routines*, *beliefs* and *values*. The mention of "routines" can be traced back to the landmark article by Tsang and Zhara [62], in which unlearning is defined as "The discarding of old routines to make way for new one, if any" (p.1437). But the list is not over yet: other definitions mention, *qua* objects of unlearning *processes*, *procedures*, *mental models*, *practices*, *methods*, and *norms*. The definition given by Matsuo [42] is clear proof of the dimensions called into question by unlearning, indeed in his view unlearning is "the changing of beliefs, norms, values, procedures, and routines to make way for new ones". Still, others mention *cognitive structures*, *habits* or *logic* [29, 1, 34].

What can be learnt from this analysis is that there is a substantial variety of views in the literature about what the object of unlearning is. The lack of convincing empirical evidence on the dynamics of unlearning processes may be regarded as a symptom of this variety. How can one study unlearning empirically, if there is no unitary view on what is unlearnt?

5 An Unlearning Taxonomy: How?

How does unlearning occur? How-questions can be addressed by identifying processes, or mechanisms carrying out processes. Not surprisingly, in light

of the considerations made so far, we find a wide variety of views in the literature. The most frequently used term, used also in Tsang and Zhara's [62] article, is *discard*. "To discard" is defined in the Oxford dictionary as "to get rid of something that you no longer want or need." As this definition implies, to discard something is to throw it away, and this gives rise to theoretical issues. How can knowledge, routines, and all the other "whats" discussed in the previous section, be thrown away, completely removed, in a cognitive system? Moreover, one might reasonably claim that it is undesirable for organizations to completely throw away those "whats" - past experiences, although perhaps no longer fitting vis-à-vis the scenario, should be "reused" to make sense of new experiences and to analyse novel situations. Thus, equating unlearning with discarding leads one to a concept of unlearning that is not only cognitively implausible but also theoretically inappropriate.

Similar considerations can be made concerning other terms that are used in the unlearning literature, which notably include, among others, *eliminate*, *forget* or *clear out*. *Elimination* [45, 1] on the first hand alludes to the removal of outdated or irrelevant knowledge, practices or procedures from organisational memory. *To forget* [18, 4, 71], on the other hand, indicates an unintentional process in which organisations lose part of their knowledge (or some other kind of "what") over time. *Clear out* [42] finally involves a more systematic and thorough process of purging outdated or redundant knowledge, routines, and practices from the organisation.

All the terms discussed so far, despite their surface differences, allude to processes that (1) lead organizations to "throw away" the object of the unlearning process, and that, (2) in some cases, notably including "forgetting", are unintentional. Of a different nature are terms such as *change* [24, 44], *reflect* [30, 43], *question* [6] and *challenge* [29, 54, 68]. *Challenging* involves critically examining existing beliefs, assumptions and practices within the organisation. This process encourages individuals and teams to question the status quo and consider alternative ways of thinking and doing things. Moreover, *challenging* promotes a culture of continuous improvement, adaptability, and innovation by fostering an environment where it is safe to question and reevaluate existing norms. *Questioning* instead is the act of raising doubts, seeking clarification, or expressing curiosity about existing knowledge, routines, and practices. This cognitive mechanism may encourage open communication, critical thinking, and creative problem-solving. Additionally, when individuals and teams are empowered to ask questions, they can uncover and address hidden assumptions, biases, and inefficiencies that may be holding the organization back.

6 Towards a Definition of Unlearning

So far we have analysed and tried to rationally reconstruct the definitions of unlearning provided in the organizational system theory literature. We have emphasized the wide variety of views expressed by scholars in the field concerning the “who”, the “what”, and the “how” dimensions of unlearning processes. Even though providing a satisfactory and unitary definition of “unlearning” goes out of the scope of this article, the review made so far can orient the path towards this ambitious theoretical goal.

To try to compose it, we believe it is first necessary to focus on how the process occurs. Of the processes currently used to describe the process, we believe that the one most applicable and at the same time cognitively plausible is the one that adopts the challenging perspective [23, 54, 49, 68, 11]. Since old learnings cannot be intentionally forgotten or completely discarded [11] they must be proactively challenged. When we talk about “challenging”, we refer to adopting a reflective posture that can systematically question the current way of doing things [6, 3, 43]. Moreover, the challenge dimension is functional for several reasons. First, it enables elements that often belong to an irrational and invisible sphere of organizations (such as routines and beliefs) to become visible and recognizable, and therefore open to being challenged [25]. Additionally, the dimension of the challenge has a clear beginning and end, allowing for timing, defining, monitoring, and evaluating the effectiveness of the unlearning process. Moreover, the challenge dimension directly involves the actors in the unlearning process deliberately and intentionally, drawing on their dynamic capabilities [20]. This fundamental and indispensable characteristic of unlearning [70] fosters participation and effectiveness of change [38].

Turning now to defining the elements that must be the object of the unlearning process we believe that the great common denominator uniting the objects of unlearning is their belonging to the past and the influence they now act on the present. In organizations, however, when we speak of these objects of unlearning, we are not only referring to the historical but also to all the data, processes and information [28] that feed the lenses through which the present is observed. The history and information that have ensured the survival of the organization risk in the present, however, anchoring them to the past through persistent, self-reinforcing mechanisms that are referred to in the literature as path dependencies [56]. These mechanisms, hindering the organization like barriers, generate negative transfer effects that by inhibiting the ability to learn prevent the organization from evolving and becoming [64]. As a result, if the ultimate objective of unlearning is to free an organization

from aspects that keep it bound to an outmoded and misleading past [39, 59], a category into which we can bring all the taxonomic aspects identified in the what category, we argue that these elements may be gathered under the name of path dependencies. Thus seeing unlearning as challenging path dependencies such a definition can be applied to the entire organisational dimension.

We believe that this tentative proposal, albeit sketchy, has some advantages over the definitions discussed here. First, on the face of it, it identifies the phenomenon of unlearning in a relatively precise way, by taking a definite stance on the whos, whats, and hows of it. Even though its main terms (notably including “challenge” and “path-dependence”) need further analysis, it circumscribes the phenomenon more neatly than the complex of positions discussed here. Second, it identifies a phenomenon of unlearning that is more cognitively plausible than phenomena that imply a complete discarding of knowledge and procedures. Third, it identifies a *peculiar* phenomenon, different in nature from, e.g., forgetting, the peculiarity being in its *intentional* nature. Whether this notion of unlearning can be helpful to the theoretical and empirical research on organizational systems, and be fully adequate from a descriptive and explanatory point of view, is a question to be addressed in future research. For the moment, we believe that the definition proposed here is, at least, one of the best candidates on the market.

7 Conclusions

As oxymoronic as it may seem to say, if in the modern scenario organizations were to look for a firm foothold to which they would still anchor themselves, they could not help but find it in change. Therefore, to stay abreast of the challenges imposed by the environment and contexts in which organizations are immersed, we can say that however confusingly it is still treated, the construct of unlearning is not only necessary but, once properly defined and structured, could prove to be a fundamental approach to be cultivated and applied. From the taxonomy carried out, as much as unlearning is a phenomenon so far theorized as a process in its own right [62, 60, 61, 10] it remains inescapably linked to its relative counterpart: learning. In its breadth, however, without overly forcing or circumscribing it, we cannot help but join other authors in necessarily considering it as an umbrella term capable of holding underneath the variety of constructs and phenomena addressed within the presented taxonomy. However, the current

scenario should not relieve academics from attempting to give a definition anyway.

The definition we provide in the article, Organisational Unlearning as challenging negative transfer's path dependencies, attempts to reorder the constructs that have previously been called into question by scholars of the subject in order to stabilise a conception of unlearning that is aware of both the construct's potential and limitations. In reality, the taxonomy used allowed us to pick judiciously the aspects brought into question by our view of unlearning, intentionally specifying the players, objects, and processes in the issue. If one of the characteristics of unlearning is intentionality, we feel that the performed taxonomy, independent of the definition we present, may be a suitable example of a technique to use in order to bring order to the argument.

While we believe, however, that this definition, in addition to shaping itself as cognitively plausible, can try to bring order within the debate, we believe that there is still much work to be done around this concept in both theoretical and empirical terms. Therefore, we hope that this work can stand as a building block within a road that is still to be structured and travelled.

References

- [1] Akgün, A.E., Lynn, G.S., Reilly, R. (2002). Multi-dimensionality of learning in new product development teams. *European Journal of Innovation Management*, 5(2), 57–72.
- [2] Alas, R. (2007). The triangular model for dealing with organizational change. *Journal of Change Management*, 7(3-4), 255-271.
- [3] Antonacopoulou, E. P. (2009). Impact and scholarship: Unlearning and practising to co-create actionable knowledge. *Management Learning*, 40(4), 421-430.
- [4] Argote, L. (2013). Organization learning: A theoretical framework. *Organizational learning: creating, Retaining and Transferring knowledge*, 31-56
- [5] Atherton, M. (2007). A proposed theory of the neurological limitations of cognitive transfer. In *Annual meeting of the American Educational Research Association*, Chicago, IL (pp. 1-8).
- [6] Baker, W. E., Sinkula, J. M. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the academy of marketing science*, 27(4), 411-427.
- [7] Bhatt, G. D. (2001). Knowledge management in organizations: examining the interaction between technologies, techniques, and people. *Journal of knowledge management*.
- [8] Becker, K. (2005). Individual and organisational unlearning: directions for future research. *International Journal of Organisational Behaviour*, 9(7), 659-670.
- [9] Becker, K. (2018). Organizational unlearning: time to expand our horizons?. *The Learning Organization*.
- [10] Becker, K. (2019). Organizational unlearning: the challenges of a developing phenomenon. *The Learning Organization*.
- [11] Brook, C., Pedler, M., Abbott, C., Burgoyne, J. (2016). On stopping doing those things that are not getting us to where we want to be: Unlearning, wicked problems and critical action learning. *Human Relations*, 69(2), 369-389.
- [12] Cegarra-Navarro, J. G., Wensley, A. (2019). Promoting intentional unlearning through an unlearning cycle. *Journal of Organizational Change Management*.

- [13] Cirnu, C. E. (2015). The shifting paradigm: Learning to unlearn. *Journal of Online Learning Research and Practice*, 4(1), 26926.
- [14] Cousins, B. (2018). Design thinking: Organizational learning in VUCA environments. *Academy of Strategic Management Journal*, 17(2), 1-18.
- [15] Czarniawska, B. (2017). Organization studies as symmetrical ethnology. *Journal of Organizational Ethnography*, 6(1), 2-10.
- [16] Dewey J (1938) Experience and education. *Macmillan*, New York.
- [17] De Holan, P. M., Phillips, N. (2004). Remembrance of things past? The dynamics of organizational forgetting. *Management Science*, 50(11), 1603-1613.
- [18] Dodgson, M. (1993). Organizational learning: a review of some literature. *Organization Studies*, 14(3), 375-394.
- [19] Durst, S., Zieba, M. (2019). Mapping knowledge risks: towards a better understanding of knowledge management. *Knowledge Management Research and Practice*, 17(1), 1-13.
- [20] Eisenhardt, K. M., Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, 21(10-11), 1105-1121.
- [21] Ethiraj, S. K., Levinthal, D. (2004). Modularity and innovation in complex systems. *Management Science*, 50(2), 159-173.
- [22] Greeno, J. G., James, C. T., DaPolito, F. J. (1971). A cognitive interpretation of negative transfer and forgetting of paired associates. *Journal of Verbal Learning and Verbal Behavior*, 10(4), 331-345.
- [23] Grisold, T., Kaiser, A. (2017). Leaving behind what we are not: Applying a systems thinking perspective to present unlearning as an enabler for finding the best version of the self. *Journal of Organisational Transformation and Social Change*, 14(1), 39-55.
- [24] Gustavsson, B. (1999). Three cases and some ideas on individual and organizational re-and unlearning. In 6th *Workshop on Managerial and Organizational Cognition:* " Re-thinking in/by? Organisations/collectives". University of Essex, England.
- [25] Haider, S. (2009). The organizational knowledge iceberg: an empirical investigation. *Knowledge and Process management*, 16(2), 74-84.
- [26] Hedberg, B. (1981). How organizations learn and unlearn. *Handbook of organizational design* (1), 3-27.

- [27] Hedberg, B. L., Nystrom, P. C., Starbuck, W. H. (1976). Camping on seesaws: Prescriptions for a self-designing organization. *Administrative Science Quarterly*, 41-65.
- [28] Heikkila, E. J. (2011). An information perspective on path dependence. *Journal of Institutional Economics*, 7(1), 23-45.
- [29] Hendry, C. (1996). Understanding and creating whole organizational change through learning theory. *Human Relations*, 49(5), 621-641.
- [30] Hislop, D. (2013), Knowledge Management in Organizations: A Critical Introduction, 3rd ed., *Oxford University Press*, Oxford.
- [31] Howells, J., Scholderer, J. (2016). Forget unlearning? How an empirically unwarranted concept from psychology was imported to flourish in management and organisation studies. *Management Learning*, 47(4), 443-463.
- [32] Hsu, S. W. (2021). Exploring an alternative: Foucault-Chokr's unlearning approach to management education. *The International Journal of Management Education*, 19(2), 100496.
- [33] Keung, Y. C., Ho, C. S. H. (2009). Transfer of reading-related cognitive skills in learning to read Chinese (L1) and English (L2) among Chinese elementary school children. *Contemporary Educational Psychology*, 34(2), 103-112.
- [34] Klammer, A., Gueldenberg, S. (2019). Unlearning and forgetting in organizations: a systematic review of literature. *Journal of Knowledge management*.
- [35] Klammer, A., Grisold, T., Gueldenberg, S. (2019). Introducing a 'stop-doing' culture: How to free your organization from rigidity. *Business Horizons*, 62(4), 451-458.
- [36] Klein, J. I. (1989). Parenthetic learning in organizations: Toward the unlearning of the unlearning model. *Journal of management studies*, 26(3), 291-308.
- [37] Kluge, A., Schüffler, A. S., Thim, C., Haase, J., Gronau, N. (2019). Investigating unlearning and forgetting in organizations: Research methods, designs and implications. *The Learning Organization*.
- [38] Kraft, A., Sparr, J. L., Peus, C. (2018). Giving and making sense about change: The back and forth between leaders and employees. *Journal of Business and Psychology*, 33(1), 71-87.

- [39] Leonard-Barton, D. (1992). Management of technology and moose on tables. *Organization Science*, 3(4), 556-558.
- [40] Martignoni, D., Keil, T. (2021). It did not work? Unlearn and try again—Unlearning success and failure beliefs in changing environments. *Strategic Management Journal*, 42(6), 1057-1082.
- [41] Matsuo, M. (2018). Goal orientation, critical reflection, and unlearning: An individual-level study. *Human Resource Development Quarterly*, 29(1), 49-66.
- [42] Matsuo, M. (2019). Critical reflection, unlearning, and engagement. *Management Learning*, 50(4), 465-481.
- [43] Mehrizi, M.H.R. and Lashkarbolouki, M. (2016), “Unlearning troubled business models: from realization to marginalization”, *Long Range Planning*, Vol. 49 No. 3, pp. 298-323.
- [44] Mezas, J., Grinyer, P., Guth, W. D. (2001). Changing collective cognition: a process model for strategic change. *Long range planning*, 34(1), 71-95.
- [45] Newstrom, J. W. (1983). The Management of Unlearning: Exploding the "Clean Slate" Fallacy. *Training and Development Journal*, 37(8), 36-39.
- [46] Nguyen, N. (2017). The journey of organizational unlearning: a conversation with William H. Starbuck. *The Learning Organization*.
- [47] Nystrom, P., Starbuck, W. H. (1984). To avoid organizational crises, unlearn. *Organizational Dynamics*, p.53-66.
- [48] Perfect, T. J., Moulin, J. A., Conway, M. A., Perry, E. (2002). Assessing the inhibitory account of retrieval-induced forgetting with implicit memory tests. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 28, 1111–1119.
- [49] Rushmer, R., Davies, H. T. O. (2004). Unlearning in health care. *BMJ Quality Safety*, 13(suppl 2), ii10-ii15.
- [50] Sarason, I. G., Stoops, R. (1978). Test anxiety and the passage of time. *Journal of consulting and clinical psychology*, 46(1), 102.
- [51] Sarason, I. G., Sarason, B. R., Pierce, G. R. (1995). Cognitive Interference. In *International handbook of personality and intelligence* (pp. 285-296).