

Review Article

Organizational Unlearning: An Analytical Literature Review

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Abstract

This report sets out to provide an analytical review and commentary along the literature about unlearning in organizations (UO). Since this issue has managerial importance, this paper provides significant motivation for deepening our understanding of the unlearning. The review covers the period from 1981 to 2013 inclusive and focused on organizational management. Theoretical and empirical works are analyzed from the perspective of content focus. Three research themes are discussed: Antecedents (levels, process and facilitator), dimensions (cognitive, behavioral and contextual) and consequences (benefits and harms) of UO. The paper also concerns unanswered questions in each trend. Finally, an outline of topics requiring further research is offered.

Keywords: Unlearning; Organizational unlearning; Literature review

Introduction

Todays, knowledge becomes a critical factor in achieving competitive advantage and organizational survival depends on to use organizational and individual knowledge. Hence, many organizations try to make use of their full potential for gain and learn more and more new knowledge. But do organizations can gain, learn and use any kind of knowledge? It is also usually assumed that some features should be regard to the usage of knowledge in organizations. So, first it is important to identify appropriate knowledge and then use appropriate mechanisms of absorption and application that in organizations. But as opposed to learning in organizations, one concept has attracted much less consideration in the field of organizational learning and organizational knowledge management: organizational unlearning. In 1981, Hedberg [1] wrote the first article about unlearning. He believes that unlearning is vital for organizations to learn how to survive and compete in the competitive landscape [1,2]. Although for the last 30 years, many researchers from various disciplines have come up with this topic, but unlearning in management literature has remained unclear and loosely defined. Since studies in this area are scattered, we decided to explore and analyze theoretical and empirical works that accomplished during these years. The aims of this paper are: (1) analytical review of theoretical and empirical development of the UO (2) to propose a research model include antecedents, processes and consequences of the UO so as to identify the areas need of further development; and (3) to provide recommendations for future research aimed at developing a more integrated research agenda on the UO for scholars. This paper is important for several reasons: (1) a timely synthesis of knowledge contributes to the basis of theory extension; (2) the identification of key elements in the UO provides a framework for future research and encourages cross-comparison of research; and (3) the component factors of the UO identified and the research model proposed in this study can be adopted and further developed in the context of other studies.

The paper is organized as follows. First, it identifies a set of refereed English-language journals, mainly in the disciplines of management that publish researches over the 1981–2013 periods. Second, from these academic journals, it develops a comprehensive database of articles related to the unlearning over the last three decades. Third, by means of a qualitative content analysis, the research issues and key conclusions of these studies are analyzed and classified into three categories: antecedents, processes and outcomes. The paper starts with the unlearning concept. It then reviews various processes and

operations offered by the literature, followed by the research focusing on the antecedents of the UO then followed by the research focusing on dimensions of UO and ultimately UO consequences will be discussed. In the final section, drawings on the above literature review gaps in the UO literature are clarified and some key areas for future research are proposed.

Unlearning Concept

In this part, we present unlearning concept from different point of views and try to advocate a comprehensive definition through them. Then the most important points of giving definition will be discussed.

After Hedberge [1] who was the first use "unlearning" in his article: "How organizations learn and unlearn?" And defined unlearning as discarding knowledge as the situation changes, many students have been using different definitions for unlearning. Some of these definitions are shown in Table 1.

As we can see, there are a variety of definitions, but despite these differences there are common concepts that can be traced through them. We try to classify these concepts. Finally, four points were obtained:

Intentionality

Unlearning is an "intentional" act. It means that unlearning is planned and premeditated. Not given attention to the point creates heterogeneity in terminology and we can see turmoil here. This is why different authors use different terms to refer to unlearning. Two common words for this phenomenon are "forgetting" and "unlearning". Although some authors [3] use other terms such as amnesia, but in this article we reviewed unlearning in a managerial context, hence neglected irrelevant definition. It should be mentioned that there are differences between forgetting and unlearning: These terms, have two essentially

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Scholar(s)	Year	Unlearning definition			
Hedberg	1981	Discarding Knowledge as the situation changes.			
Newstrom	1983	The process of reducing or eliminating preexisting knowledge or habits that would otherwise represent formidable barriers new learning.			
Klein	1989	Having the capacity of selecting from all possible alternative responses with regard to the context.			
McGill and Slocum	1993	carding ways of processing experiences that have worked in the past, for making way for new experiences and new wa xperiencing and it is the necessary precursor to learning.			
Starbuck	1996	The process that shows people they should no longer rely on their current beliefs and methods, because current beliefs ar methods shape perceptions, they blind people to some potential interpretations of evidence.			
Sherwood	2000	Destruction of the old patterns and dealing with the established assumptions and patterns among knowledge elements.			
DeHolan and Philips	2002	Loss, voluntary or otherwise of organizational knowledge resulting in a change in the organization's collective response to any stimuli.			
Becker	2003	The process by which individuals and organizations acknowledge and release prior learning in order to accommodate new information and behaviors.			
Pourdehnad et al.	2006	Functional and perhaps intentionaldiscarding of obsolete or misleading knowledge.			
Cegarra-Navarro & Dewhurst	2006	A dynamic process that identifies and removes ineffective and obsolete knowledge and routines, which block the collec appropriation of new knowledge and opportunities.			
Akgun, Byrne and Lynn	2006	Changes in beliefs and routines during team-based projects.			
Tsang and Zahra	2008	Discarding of old routines to make way for new ones, if any.			
Fernandez and Sune	2009	Intentional or unintentional loss of organizational knowledge at any level.			
Srithika and Bhattacharyya	2009	The process by which obsolete or misleading knowledge is rejected.			
Fernandez	2009	Intentional or unintentional loss of organizational knowledge at any level.			
Tsang	2010	Discarding of old routines to make way for new ones.			
Easterby-Smith & Lyles	2011	Unlearning refers to deliberate attempts to dispose of unwanted knowledge, whereas forgetting refers to a loss of knowl that is not necessarily planned or intended.			
Rezazade Mehrizi	2011	An intentional process of managing old and obsolete knowledge in order to reduce its possible negative impacts.			
Lee et al.	2011	Changes in the beliefs, norms, values, and procedures and the changes are presented in the forms of changes in the beliefs and routines in an organization.			
Esa& Abdul Samad	2011	The process by which individuals and organizations acknowledge and release prior learning (including assumptions and mental frameworks) in order to accommodate new information and behaviors.			
Fernandez et al.	2012	Voluntary or non-voluntary loss of organizational knowledge on any level.			
Wong et al.	2012	The process of clearing out old routines and beliefs that no longer meet the current challenges.			
McKeown	2012	Release redundant knowledge, beliefs and practices.			
Shukla	2013	Intentional discarding of processes, routines, strategies, structures, and knowledge by organizations.			
Hislop et al.	2013	Processes of abandoning or giving up knowledge.			
Zhao, Lu and Wang	2013	Process of abandoning useless, outdated or misleading knowledge, especially changing rigid beliefs, standards, values and routines.			

Table 1: Unlearning definitions

different: forgetting is often intertwined with the idea of "unlearning," but there is an important difference. Both terms refer to the loss of "aspect (s)", the difference is that unlearning refers to intentional and deliberate attempts to discard of unwanted "old and absolute aspect (s)", since forgetting refers to a loss of "aspect (s)" that is not necessarily planned or intended. Some scholars have taken the term intentional forgetting instead of organizational unlearning (for example, [4]).

Process property

Unlearning is a "process" not a discrete event. Unlearning not just a specific action, but has a series of actions or steps taken to make a particular end. There is consensus that end of the unlearning process leads to targeted results. This result is avoidance of negative possible impact of obsolete aspect(s). It should be mentioned that the other differences between unlearning and forgetting go back to this period. Forgetting usually has negative effects, but unlearning hasn't these. In other words, when we discuss about forgetting, the unpleasant things occurred that we should seek to avoid it, but in unlearning, it is important to create unlearning situations.

Level base definition

As noted by many scholars [5-7], unlearning has the different

level of analysis based on "individuals or organizational" (or group) (this case will be discussed in antecedents of unlearning). These levels should be regarded when we discuss on unlearning.

subject-oriented

Unlearning can have different subject that is "obsolete" [7-11]. Literature has suggested many old thing(s) for unlearning. We find in our review of 66 works, 16 most frequent subjects for unlearning; knowledge (e.g. [1,12-17], habit (e.g. [12,18], experience (e.g. [19]), belief (e.g. [20-22], method (e.g.[8]), pattern (e.g. [23]), learning (e.g. [13,24,25], routine (e.g. [5,14,20,22,26], organizational artifact (e.g. [20]), information structure (e.g. [27]) practice (e.g. [28,29]), norm (e.g. [21]), value (e.g. [21]), procedure (e.g. [21]), assumption (e.g. [23,30] and mental framework (e.g. [30]).

Our study reveals that among these, 4 subjects have gained the most attention: knowledge, 43%; routine, 19%; Belief, 8% and learning 8%. Other subjects were 5% and 17% of definition were without any specific subject.

Based on points discussed above, we can conclude that "Unlearning is an intentional process that deals with individual or organizational obsolete aspect(s) that are harmful and should be discarded and replaced by new ones".

Research Methods and Overview

We chose to investigate unlearning for two reasons; first, there is a growing body of literature in this area. Secondly, there is turmoil about the concept of unlearning in the management literature. Our analysis process included classifying the existing literature in unlearning using works published across more than three decades plus (1981 to 2013). This serialization was chosen to track the development of the field from the time that unlearning papers first appear in the published literature.

decisions were made for managing the present effort: The first dealt with the literature base to be surveyed. For this reason, all of the work on unlearning and a comprehensive list over this time period should be considered. The strategy for this review was to find works on peerreviewed English-language journals by searching electronic databases (including books, theses and dissertations and articles). We started a literature search with a keyword search using several electronic databases (ProQuest, Springer, Science Direct, EBSCO, JSTOR and Emerald) supplemented by manually search through publications of the relevant journals. Search terms include unlearn, unlearning, individual unlearning, organizational unlearning, unlearning in organizations, organizational forgetting, and organizational amnesia. Then, all the papers reviewed and relevant works organized in chronological order. This process produced over 66 journal articles, book chapters, dissertations and theses that were available for analysis. Table 2 lists the number of works in each type of document published during the research period.

Some observations can be made from Table 2. The first concerns the publication dates. The table shows that only eight works (12.1%) were published in the first ten-year period (1981–1990) and 3 of them were published in Organizational dynamics journal. Surprisingly the number of published works 4 works (6.1%) has been reduced in the second ten-year period (1991–2000) and this is not clear why. 54 works (81.8%) were published in the last decade. Also, from 8 articles were published in proceeding, 7 of them were held in the last decade.

A second decision concerned how to analyze these works. For this reason content of these works were studied in-depth and summarized. And so, based on the information that won during the critique, several codes were defined for categorizing papers.

For an analysis of the unlearning researches, the method of content analysis [31] was applied. The content analysis revealed that the existing literature on the unlearning clustered around eight main themes under three categories of analysis: antecedents, dimensions and consequences. In addition, in the three categories also included several major themes, shows that Figure 1. With this content analysis, key themes, trends and differences identified within different streams of the UO to facilitate analysis of a data, thereby facilitating the achievement of reliability and interpretative validity, both quantitative (e.g. frequency counts, trends and differences over time) and qualitatively (e.g. theme identification, theory elaboration).

Antecedents of unlearning include key topics related to unlearning (1) levels, (2) process and (3) facilitators. The key dimensions in the unlearning research focuses were on (4) cognitive, (5) behavioral and (6) contextual. The key consequences of the unlearning were on (7) benefit and (8) harm of unlearning. The following discusses the three components of the UO that have been investigated in earlier works.

Antecedents of unlearning

Given the high level of activities of UO researchers across the globe, a logical place to begin an inquiry of this phenomenon is with its antecedents. Depicted in Figure 1 there are three important streams of the antecedents of the unlearning: levels, process and facilitators.

Unlearning levels

Many scholars have noted unlearning levels are individual, group and organization (e.g. [1,32]. Since these antecedents have strategic value, related works in each level are discussed here.

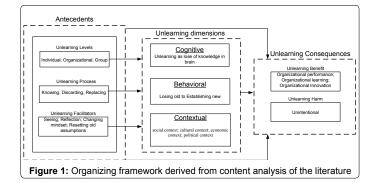
Individual and organizational level: Possibly the most frequently examined unlearning antecedent is individual and organizational level. A lot of these works confirmed that unlearning at the individual level refers to the case where a person becomes aware that certain points of knowledge he or she possesses are no longer valid or useful [8] and Hislop et al. [33] stated three types of individual unlearning: fading, wiping and deep unlearning and each type of unlearning is argued to differ in respect of catalyst, intentionality, speed and impact. Fading or routine unlearning occurs gradually over time through lack of use. Wiping is a process of unlearning that results from a deliberate process of change that has been externally imposed, for example, a change initiative or a change in job function. Deep unlearning is more likely to involve the unlearning of values and assumptions than simply the unlearning of particular behaviors or practices [34]. Many scholars concerns to organizational level [1,6,8,12,13,35-37] and they have often examined the relationship between individual and organizational unlearning, based on believing that occurrence unlearning in organizations relates to individual level. As Windeknecht and Delahaye [24] suggest in their article, it is important to discuss the connection between individual and organizational unlearning to better understand the relationships and interactions. Interrelation between individual and organizational unlearning is discussed in Becker [13,25]. Results of Hussain [6] research indicated there had been a very thin connectivity between the organisational and individual unlearning. Alas, few scholars have been researching about factors that impact on individual or organizational unlearning. Becker and Hyland emphasized that there as impacting factors on both people and organizational unlearning, but they haven't mentioned these elements. In her Ph.D. thesis, Becker [25] recognized six key factors at the level of the individual were identified as impacting unlearning: positive prior outlook; individual inertia; feeling and expectations; positive experience and informal support; understanding the need for change; and the new way assessment. Two factors at the organizational level that also impact unlearning: organizational support and training and history of organizational change.

Group level: Unlearning takes place through interaction in groups/ teams and some attributes of groups have impact on unlearning hence unlearning in group level is another area that UO literature dealt with. This argument is supported by several empirical studies on the unlearning. For example, Akgun et al. [20] by examining 197 new product-development projects, verify that environmental turbulence positively effects team unlearning, team unlearning concurrently stimulates team improvisation and team improvisation positively impacts new product success by utilizing/implementing new knowledge acquired by unlearning and improvisation. Some researchers (e.g. [14]) look at teamwork as a constituent of the shared organizational context and its effects on the process of unlearning. Other scholars focus on the factors that have direct impact on team unlearning. Scholars such as [38] showed team crisis and anxiety have a direct impact on team unlearning. Also, environmental turbulence also has a direct impact on both team crisis and anxiety and team unlearning, and after team beliefs and project routines have changed, implementing new knowledge or information positively affects the new product success. As Zhao et al. [37]), "group unlearning is between individual unlearning and Citation: Akhshik SS (2014) Organizational Unlearning: An Analytical Literature Review. Int J Econ Manag Sci 3: 190. doi: 10.4172/2162-6359.1000190

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All documents Based on the type	Subtotal	1981-1990	1991-2000	2001-2013
Management Journals	45	7	1	37
Advanced Management Science	1			1
African Journal of Business Management	1			1
Creativity and Innovation Management	1	1		
Electronic Journal of Knowledge Management	1			1
International Journal of Information Management	2			2
International Journal of Project Management	1			1
Information Science and Knowledge Management	1			1
Journal of Technology Management	3	1	1	1
Journal of Knowledge Management	1			1
Journal of Management & Organization	1			1
Journal of Management Inquiry	3			3
Journal of Management Organization	1			1
Journal of Management Studies	1	1		
Journal of Organizational Change Management	4			4
Knowledge Management Research & Practice	1			1
Learning Organization Journal	4			4
Management Decision	1			1
Management Learning	2			2
Management Research Review	1			1
Management Science	2			2
Management Skills for Project Leaders	1			1
Organizational Change management	1			1
Organizational dynamics	3	3		
Organizational Learning	1			1
Product Development & Management Association	1			1
Scandinavian Journal of Management	2			2
Strategic Organization	1			1
Technological Forecasting and Social Change	1	1		
The International Journal of Entrepreneurship and Innovation	1			1
Other Journals	8	1	1	6
Training & Development Journal	1	1		
American Economic Journal: Microeconomics	1			1
foresight	1		1	
Human Relations	1			1
Information Technology & People	1			1
Journal of Engineering and Technology Management	1			1
Service Industries Journal	1			1
Vikalpa	1			1
Proceedings	8		1	7
Book chapters	2		1	1
Thesis & dissertations	3			3
Ph. D. thesis	2			2
M. A. dissertation	1			1
Total	66	8	4	54

Table 2: Research on the organizational unlearning: number of journal articles.



organizational unlearning". They consider that "individual unlearning gradually penetrates into the group level and promotes group unlearning, and eventually reaches to the organizational". Group unlearning also includes three phases: knowledge disintegration, knowledge sharing and elimination of knowledge [28].

Unlearning process: Another unlearning antecedent is unlearning process. Our review indicates that different processes regarded for UO. There are three different streams: According to some scholars (e.g. [1,6,14,22,28,39], unlearning is a process of "discarding" or reducing, eliminating, clearing, releasing obsolete aspect. Some others have expressed unlearning as a process of "discarding obsolete aspect for making new way" (for example, [7-9,13,19,23,40,41]). Other scholars

have stated unlearning is a process of "acknowledgement of obsolete aspect, discarding of it to accommodate new aspect" (e.g. [25,42].

Unlearning facilitators: A number of scholars focus on the facilitator (or ways for facilitating) of UO. According to some scholars, there are ways for facilitating unlearning. Surprisingly, none of them have not considered these ways based subject of unlearning. For example, Starbuck [8] suggests eight ways for facilitating unlearning. He believes that "since the essential need for unlearning is doubt, any event or message that engenders doubt about current beliefs and methods can become a stimulus for unlearning". People can start from the premises that current beliefs and methods are "not good enough" or "merely experimental". They can "turn surprises", "dissents, and warnings into question marks". They can "listen carefully to the ideas of collaborators and strangers". They can "look for feedback paths" and they can "try to synthesize divergent interpretations of phenomena". Some scholars such as Pourdehnad et al. [9] believe that it is possible to design systems that facilitate learning and unlearning by the skill of "seeing" that thing which needs to be let go of and changed, "predisposition and mindset to challenge those assumptions", "ability to reflect", to step beyond one's individual role to see the whole, changing mindset in how you see and interact with the world, "resetting and challenging" any old assumptions, experience, ideals, values, motives and beliefs that are used consciously or subconsciously in decision-making and learning. Resistance to unlearning according to Srithika and Bhattacharyya [10] is a barrier to unlearn and it includes the unwillingness to go of old practices/knowledge, besides the uncertain outcomes of new knowledge/practices/offices. They believe that appreciative inquiry is an intervention to facilitate unlearning. Only Cegarra-Navaro et al. [43] in their research focus on the aspects of organizational context that facilitate the individual unlearning in the Homecare domain. They argue that the unlearning enablers that support individual unlearning consist of organizational structures and factors that relate to the examination of the perceptual lens (es) and the changing of individual habits. The outcome of the creation of this specialized unlearning context will be a self-awareness by members of the HHU that many of their hard-earned nuggets of knowledge, intuition and just plain opinion depend on assumptions about the world that are simply no longer true.

Unlearning dimensions

Compared with the volume of works on the antecedents of the unlearning perhaps, the area of UO dimensions has received the least attention. It should be noted that the most of these studies are drawn from the field of organizational learning and their frameworks, are based on that field.

Cognitive: In this dimension, unlearning involves eliminating existing cognitive structures through which things are seen, selectively perceived and attended to. Abandoning old cognitive frames, which would have filtered out new ideas and knowledge, are particularly important when new knowledge is conflicting with the current frames of reference. Thus, cognition helps individual/organizations receive before unperceived and/or disregarded new knowledge [40]. Based on the cognitive perspective, replacing new knowledge is substantially shaped and limited by the potential cognitive filters and frames of reference. Any piece of knowledge in the process of unlearning should pass through individual/organization cognitive filters. Until this knowledge is incompatible with the filters, unlearning cannot be passed. Hence unlearning conforms from cognitive filters and frame of reference. Our review indicates that although most of the researchers not mentioned to unlearn from a cognitive view, but analyzing their

definitions of the unlearning show that some of them such as Starbuck [8], Sherwood [23] and Akgun et al. [38], implicitly concern to cognition role in unlearning. Among scholars, only a few of them such as Akgun, Lynn and Byrne [38] regarded unlearning as a cognitive process directly and some others (e.g. [42]) defined unlearning based on assumptions and mental frameworks.

Behavioral: Another dimension of unlearning is behavioral. After acknowledging and understanding the absolute knowledge as a result of cognitive unlearning, it is time to detaching from them. This separation process is problematic for new knowledge could have become habitual and followed unconsciously. As some authors (such as [40]), the behavioral dimension of unlearning entails the discarding of not only conscious and deliberate actions but also subconscious of it. These activities have been manifested in routine, practices and processes. Like the previous dimension, a few scholars [5,14,22,38] addressing these actions and their definitions of unlearning implicated behavioral dimension. It should be noted that most articles used mixed features of these dimensions with negligence and they didn't make any distinction between them.

Contextual: The researches on the contextual dimension of unlearning are still very poor and this area has not yet achieved enough academic concerning management journals. This may be due to that the researches still have not attained the necessary theoretical foundation.

Klein [32] was the first scholars who concern the contextual factors in unlearning. He believed that the capacity of selecting from all possible alternative responses with regard to [14] unlearning depends on the shared organizational context developed by the company. If the shared organizational context considers unlearning as a prior step in the learning procedure, and so at that place is a positive influence along the foundation of relational capital otherwise unlearning has a negative consequence on the creation of relational capital.

Cegarra-Navarro, Eldridge and Martinez-Martinez [28] in their research focuses on unlearning and its impact on environmental knowledge by carrying out an empirical investigation of the unlearning context in 127 Spanish hospitality companies. They accompany it is important that managers provide an appropriate unlearning context to support the openness of individuals to new ideas and environmental awareness. Otherwise, individuals may be fearful of or confused by the prospect of unlearning old habits and procedures. They addressed the relationships between an unlearning context and environmental knowledge and fewer still have included measures of both the unlearning context and environmental knowledge. Some others, such as Easterby-Smith and Lyles [39] stressed on social context. They believed the interaction between people and groups and the loss of the social networks and shared perspectives, which sustain particular worldviews and strategies, can effect on unlearning. Rezazade Mehrizi et al. [16] examine the pattern of unlearning actions differs based on different types of knowledge. They conclude that the characteristics of knowledge, the characteristics of the container of the knowledge, and the contextual factors are the three categories of factors explain the different patterns of UO. In other research, Cegarra-Navarro, Eldridge and Sanchez [41] show that an unlearning context (i.e., the examination of lens fitting, the framework for changing habits and the framework for consolidating emergent understandings) is an important solution for the process of counteracting the negative effects of counter-knowledge.

Unlearning consequences

Reasonable benefits of unlearning obtained from nature of that:

relinquishing outdated aspects and practices to deal with the possible negative impacts of those obsolete aspects. Grounded on this concept, many scholars have addressed the potential benefits of UO.

Change management: The benefits of unlearning are in training and education for employees and organizations. This agreement should produce reduced errors during periods of alteration. Studying unlearning will allow users to adapt more quickly to changing systems and organizational processes [44]. As some researchers such as Becker [13] unlearning is a necessary imperative for change. From Rebernik and Sirec [35] viewpoint, unlearning is a stage or catalyst in the process of change.

Knowledge transfer: According to Tsang [26] organizational unlearning affect knowledge transfer in each stage of the transfer process, namely, initiation, implementation, ramp-up and integration.

Knowledge management:

Innovation: Zeng and Chen [18] ushered in their empirical analysis that organizational unlearning has both direct and indirect effects on organizational innovation while organizational learning ability plays a mediating function between them. Also, Sherwood [23] in his study after describing 12 features of unlearning organizations showed that the unlearning foster the idea generation phase of innovation.

Individual and organisational learning: UO benefits for learning pointed out by many researchers. Some scholars such as Becker [13] believe that unlearning at both an individual and organizational level plays a part in the overall organizational learning that occurs and number of factors relating to both individuals and organizations will have an impact on the ability to learn. De Holan and Philips [4] confirmed Becker claim's.

Conclusion

By means of a qualitative content analysis, this review highlighted the substantial progress that has been arrived at in the unlearning in terms of its antecedents, processes and events in the past three decades (1983-2013), and also provided an integrative model of how these works fit into the overall subject of the unlearning, as indicated in Figure 1. The interest about the unlearning emerged from the various fields and unlearning is being more regularly discussed. Despite the speedy development of the unlearning literature, the researches to date has been broken up and numerous areas remained uninvestigated. We see that there are a few theories confirmed by empirical evidence to identify how individuals and organizations unlearn, and what genes may influence this unlearning. We also notice little attention is given to unlearning impact and value and very little systematic research has been carried out in this field, however, the unlearning remains one of the least understood phenomena in organizations. The field would benefit from not only more qualitative work, but also multi-level studies providing richer insights and better understanding about the role of unlearning in organizations.

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