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Managerial learning challenges in a complex world

Abstract

Purpose – Managers work surrounded by complex environments, from which they need to learn, in order to understand them. However, complexity poses several challenges to managerial learning, for which usually management educational programmes have not prepared managers. Thus, this paper explores such challenges and possible ways to overcome them.

Design/methodology/approach – This is a conceptual paper that explores in-depth the issue of managerial learning challenges in a complex world. Managers face these challenges during their practice, yet sometimes management education has not prepared them for this.

Findings – Three managerial learning challenges due to complexity are identified. First, through cognition and cognitive structures, managers simplify the world around them. Nevertheless, biases, inertia, and inaccuracy emerge, as managers' mental models are not truly capable of capturing complexity. Second, managers look for information to aid them in their learning processes, but the information they gather is sometimes bogus, invalid or unfounded. Third, managers could seek for support from management research to improve their learning. However, given management research intricacies, limitations and particularities, a learning challenge emerges as well, as management research has been rarely capable to capture complexity.

Originality/value – Having explored these managerial learning challenges due to complexity, this paper discusses a carefulness-based management learning ideal, which by being underpinned by the quality of carefulness and the related concepts of critical thinking, negative capability, and a

deep learning style, suggests a potential new way to approach management learning in light of complexity.

Managerial learning challenges in a complex world

Introduction

Managers operate in complexity, which could be difficult to understand (Amit and Schoemaker, 1993; Jenkins, 2014; McMillan, 2004; Reed and Defillippi, 1990; Ropes, 2015). To make sense of their complex environments, managers usually go through an "interpretative process aimed at the understanding of reality" (Richardson, 2011, p. 290). In other words, managers engage in a learning process to figure out what is going on, in order to know what to do next (Maitlis and Christianson, 2014; Sandberg and Tsoukas, 2015). However, their learning is rarely perfect, facing at least three broad challenges due to complexity. First, to cope with such complexity managers develop schemas that simplify their environments and provide some guidance on how to act in them (Balogun and Johnson, 2004; Hodgkinson and Sparrow, 2002; Kaplan and Tripsas, 2008; Walsh, 1995). Nonetheless, given human beings' bounded rationality (Ocasio, 2011; Shepherd and Rudd, 2014; Simon, 1991), a challenge arises from simplistic mental models that could restrict attention and bias managers (Day and Nedungadi, 1994; Weible et al., 2012). Second, as managers try to make sense of their complex environments, they look for information that could aid them. However, managers tend to be bombarded by sometimes bogus ideas and theories (Ghoshal, 2005; Rousseau and McCarthy, 2007). Finally, even when relying on management research, managers face a problem given some of management research limitations, such as how fragmented the field is in terms of paradigms, the excessive focus of management academics on theory building and

their comparative neglect of practical implications, as well as the incapacity of most management theory to capture complexity (Abreu Pederzini, 2016; Davis, 2010). In other words, the "organizational implications of [management] research are a major issue… and business academics are not doing a good job of educating managers" (Syed et al., 2010, p. 72).

Having discussed, first of all, what complexity is, followed by explaining each of the managerial learning challenges, I will argue that to help solve these potential managerial learning challenges, a carefulness-based approach to learning is possibly needed (Barnett, 2009, 2013). A carefulness-based ideal to learning is based on the quality of carefulness and underpinned by critical thinking (Golding, 2011; Robinson, 2011), negative capability (Eisold, 2000), and a deep learning style (Biggs et al., 2001; Entwistle and McCune, 2004).

Managerial learning and its challenges

As organizations have become larger and more intricate, a plethora of functions get performed in them. For example, a car manufacturer firm could have car designers, outsourced auto-part suppliers, a workforce that assembles the cars, people in a human resources division that look out for employees, administrative and finance employees that aim to make sustainable the operation, and distributors that take the product to the customer, among other types of people. In such a complex social arrangement, where many groups of people contribute in varied ways, managers have become central as "…they amalgamate thousands of disparate single contributions into a single product or service" (Hamel, 2011, p. 51). Furthermore, managers, and particularly senior managers, aim for internal amalgamation while trying to make their organizations fit with the external environment too. Thus, managing requires some level of understanding of what is happening. Without any understanding of the external environment, managers could easily take

their firms into a state of competitive disadvantage (Teece, 2007; Tripsas and Gavetti, 2000); and without understanding of their organizational internal environment, managers would struggle to amalgamate those dispersed contributions. Certainly, the role of understanding could vary within the hierarchy of managers, as front line managers, closer to the operation, might not require the same level of understanding as senior managers, who are closer to strategy and its development.

Previously, I defined learning precisely as the process that leads to understanding (Lawrence et al., 2005; Richardson, 2011). Therefore, as understanding is the goal and learning is the pathway to it, knowing more about potential managerial learning challenges is necessary. It is important to caution here the reader to the fact that beyond 'learning as understanding' there are other ways of approaching and assimilating the concept of learning, such as learning as mimesis (i.e. imitation). However, it is clear that learning as understanding is a dominant conceptualization of learning, and the one that is relevant to this paper, as complexity poses managerial challenges to learning, when we conceive learning as precisley a process of understnading. Moreover, when referring to learning, caution must be taken not to consider managers' learning as something that just happens when they are enrolled in a business school undertaking a degree. By contrast, managerial learning is an ongoing process that could and hopefully should happen both before and after university, or in spite of the lack of university education (Pfeffer and Sutton, 2006; Rousseau and McCarthy, 2007).

Complexity

The core constraint of the managerial learning process is arguably the conditions under which it is carried out. Managers need understanding to accomplish the internal amalgamation of contributions and the external fit of their organizations. Nevertheless, neither of these two tasks is

easy. The reason is that both internal and external environments are (nested) complex systems, particularly of the adaptive type (Holland, 2014; Stacey, 1995; Uhl-Bien et al., 2007). The complexity of internal or external environments relates to the fact that they are "…made up of a large number of parts that interact in a nonsimple way" (Simon, 1962, p. 468). Complex adaptive systems, such as organizations, are characterized by the interaction of a myriad of interdependent agents (Marion and Uhl-Bien, 2001). These systems are nonlinear systems in the sense that the whole is not the mere sum of the parts (Lichtenstein and Plowman, 2009; Lord et al., 2011). Furthermore, in complex adaptive systems, feedback processes are essential, and thus, the behavior of an agent becomes the output that could influence the behavior of other agents, which at the same time comes back to influence again the original agent (Anderson, 1999; Stacey, 1992). Thus, sometimes complex adaptive systems, because of their internal feedback loops, amplify signals that propagate throughout the system, which could derive in infrequent and radical events happening (Boisot and McKelvey, 2010).

Now, because of the intricacies of the networks that are formed, understanding cause and effect relationships in complex adaptive systems can become confusing or even impossible. Finally, among many other types of features that distinguish a complex adaptive system, it is important to distinguish the capacity of these systems to adjust to their environments and potentially adapt to them (Mikulecky, 2001).

The key to managerial understanding is to comprehend the variables in play and the relationships among them. However, now that we understand that organizations and their external environments are complex systems, then it should be clear that managerial understanding under such conditions is hard to achieve. Furthermore, environments that surround managers tend to change (Rindova and Kotha, 2001; Ropes, 2015), so even if hypothetically a manager would

understand, understanding might just be a temporary accomplishment. Therefore, with complexity and change comes uncertainty (Allen and Boulton, 2011). Thus, complexity, change and uncertainty become the bedrock upon which most managerial learning challenges possibly lie.

Managerial learning challenges due to complexity

The cognitive challenge

So, environments that surround managers are complex. Now the question is, how could managers make sense of the complexity around them? The answer possibly comes from cognition (Balogun and Johnson, 2004; Lieberman, 2007; Weible et al., 2012; Abreu Pederzini, 2017c). Managers are bombarded with information that they need to process. To make sense or put some order on all that information, managers simplify it (Kuklinski et al., 1991; Walsh, 1995). For the latter process, managers would likely make use of schemas they hold, which are "…some generalized cognitive framework[s] that an individual uses to impose structure upon, and impart meaning to, social information or social situations in order to facilitate understanding" (Gioia and Poole, 1984, pp. 449–50). The contents of such schemas depends largely on a manager's memories and understanding of previous experiences on a certain domain and the links among them.

Evidently, the problem is that simplifying something does not necessarily mean that that something is simple. By contrast, I have argued that actually phenomena surrounding managers could be complex. For example, hypothetically, if you believe that you fully understand the stock market and you decide to invest on a stock you predict will increase its price, you are still taking a risk even if you are unaware of it (Loewenstein et al., 2008). Hence, the problem could be that in the end, the stock market was more complex than you and your predictions acknowledged, and

you might end up losing your money. Therefore, schemas could blind, especially if managers take them for full representations of the world, which make them feel overconfident.

There might be an even more concerning type of problem. It could be that, returing to the example, the stock market is more complex than you acknowledge, but you still initially make money on your investment. The latter could be because perhaps your limited understanding was plausible enough to make a rough estimate that allowed you to get through or simply because of luck. In this case, since you have made money on your investment, you might be prone to reinforce your beliefs on how the stock market behaves, as they seem to have worked. Next time you might want to risk even more money feeling overconfident that you get how the stock market works. You could again be successful without your understanding being completely accurate. The latter could happen again and again, until perhaps one day feeling completely overconfident you risk all your money in the stock market and you lose it, because your lack of full understanding finally catches up with you or because the environment changed and some of the assumptions that made your beliefs at least partially valid initially may not hold true any longer. Therefore, previous experience, and especially success, can reinforce imperfect mental models (Leonard-Barton, 1992; Teece, 2007). Furthermore, more concerningly, the problem with strongly adhered schemas is that even if being aware of evidence that falsifies them, managers could insist on them (Lewandowsky et al., 2012). Moreover, if managers continue reinforcing their schemas, they could come to a point when any evidence against them might not only be denied but even avoided, while only attending to information that is friendly to their mental models or schemas (von Hippel and Trivers, 2011).

Cognitive biases and shortcomings are not just an issue of imaginary examples. They actually might be the reason behind catastrophic managerial failure. For example, the demise of Smith Corona (Danneels, 2011) or the significant challenges at Polaroid (Tripsas and Gavetti,

2000), have been related to managers being locked into a way of understanding that at some point became insufficient, especially since their environments were changing.

More importantly, managers do not learn in isolation. By contrast, they are surrounded by many other managers and by many other types of stakeholders, with whom they usually need to negotiate their understanding (Maitlis and Lawrence, 2007). However, negotiating understanding can be difficult, since given the complexity of phenomena different people can arrive to different conceptualizations of what is happening. Furthermore, different managers or stakeholders can have different interests, and thus, negotiating understanding can turn into a political process (Fleming and Spicer, 2014), which could be messy and derive in understanding that might sometimes not be adequate but simply politically promoted. For instance, in the history of the debates on climate change, it has been seen how certain understandings of the phenomena, including those which reject it, have emerged not because they are based on evidence, but because of political interests (see, for further discussion, Levy and Egan (2003).

The misguiding challenge

Given the cognitive challenge of managerial learning, managers could benefit from exposing themselves to more comprehensive sources of information, to avoid the threats of biased cognition. However, when considering this, a second type of managerial learning challenge emerges. Some information that managers could confront might be misguiding (Davis, 2010; Ghoshal, 2005; Rosenzweig, 2007).

Managerial culture is particularly important as a source of possible problems that managers face when gathering information. Regrettably, a managerial culture exists, in some contexts, where managers value preconceptions they have on how businesses work or their intuition more than

actual evidence (Pfeffer and Sutton, 2006). In other words, "…there is a cultural perspective viewing management as self-taught and experience-based via hands-on decision making" (Rousseau and McCarthy, 2007, pp. 93–94). I am not arguing that experience is not valuable. However, the knowledge emerging from experience could be risky, especially if managers extrapolate it "…to make specific inferences on the basis of general impression" (Rosenzweig, 2007, p. 7).

A second important problem regarding information-gathering, is the vast amounts of information that exist. There are thousands of magazines and books, among other sources of information, written on management, organizations and strategy. However, as limited individuals, managers cannot absorb or process everything (Ocasio, 2011). Therefore, the dilemma is how to discriminate between useful and useless information. The latter is truly important, especially considering that information managers' face could not only be abundant but sometimes also inaccurate. For instance, for decades management gurus have promoted theories for which there might be little support. An example of the latter is the obsession with blueprints for superior performance. Many books and articles have been written in where the author(s) look at companies they consider successful and try to determine what drives success. Usually this has resulted in bogus attributions and prescriptions for superior performance, where things assumed to "…*drive* company performance are better understood as the *result of* performance" (Rosenzweig, 2007, p. 8), and thus causes and effects get confused. Unfortunately, management gurus can be fairly effective in the appealing way they present their theories, and it would usually be the case that people "…often give more attention to colorfully written, if unsubstantiated, opinion, than to the less vivid, and far-more abstruse evidence that researchers assemble" (Rousseau and McCarthy, 2007, p. 91). Thus, carefulness is needed in managers "…to separate the charlatans promising an

easy path forward to eventual ruin from the engineers building a foundation for future corporate and societal prosperity" (Henisz, 2011, p. 313).

There is a final issue to consider regarding managerial exposure to information, and that is the issue of context. Let us assume that a manager could find valuable evidence from which to learn. Even in that case, managers ought to be careful because what has been valid in a certain context might not be in another one (Christensen and Carlile, 2009). Examples of the latter abound in the field of international management. For instance, Wal-Mart's failure in Germany illustrates the importance of context. Before entering the German market, Wal-Mart had already developed a widely successful business model, which mainly entailed: "…(i) hard control over factor inputs, including labor and supplier firms, which allows Wal-Mart to reduce product cost, time-to-market and inventory storage costs… and (ii) the ability to move rapidly and autonomously in response to changes in market conditions…" (Christopherson, 2007, p. 453). However, Wal-Mart came to find that their successful USA model was partially problematic in Germany. First of all, their model of fast and autonomous responses to changes in their external environment was inadequate in Germany, as "…social norms in Germany emphasize consultation and collaboration in decisions with implications for all firm stakeholders, including employees and for the society. In the German case Wal-Mart's resource of autonomy clashed with these social norms…" (Christopherson, 2007, p. 454). Second, the importance Wal-Mart placed on controling factor inputs was also problematic in Germany:

> Wal-Mart's difficulties with supplier networks emerged because it was unable to dominate the retail distribution system and its suppliers. Wal-Mart cuts costs by dealing directly with factories and getting factory direct delivery to its stores bypassing wholesaler intermediaries. Even in the concentrated German retail environment, wholesalers have continued to act as intermediaries

between food producers and food distributors. Wal-Mart did not have the market power to alter the existing distribution system and so took on the extra costs associated with wholesaling and inventory that they are able to avoid in the USA (Christopherson, 2007, p. 459).

Therefore, even when feeling confident on the value of information –as Wal-Mart's managers did–, carefulness must continue being exerted in the learning process, as such information might not be equally valuable or valid in other contexts, and translation might be needed. The issue of context gently leads into an even more interesting problem, the problem of time. Suppose again that managers have accessed supported evidence through which they have developed insightful understanding. Especially if environments are changing, how could they know, as Hume argued, that what is true today will be true tomorrow, in one year, in ten years, in a century, or in a millennium? (1910).

The misguiding challenge illustrates again why carefulness needs to be a core principle of managerial learning. Given the vast amounts of information that managers could access and how much of that could be bogus, recklessness in accepting something could be more dangerous than remaining skeptical. Therefore, critical thinking skills (Golding, 2011) become essential in the managerial learning process, so that "Ideas are accepted or rejected based on the evidence used to back those claims and this is done with a view to helping make better decisions…" (Robinson, 2011, p. 275). Among management academics, there has been a tendency precisely to promote an evidence-based approach to management.

The management research challenge

If managers, to solve the challenges of learning in a complex world, were to indiscriminately rely on management research and its theories, they would get themselves into trouble too. The latter can be argued because the prediction and prescription capacity of some management research theories continues to be contested and limited (Abreu Pederzini, 2016; Davis, 2010).

Management research, including organization studies or strategic management, are fairly young academic fields. For example, "…organization studies can be presumed to be more than 100 years old in the USA (and also in England, Germany, and France)" (Bozeman, 2013: 171). Furthermore, it was just until some decades ago that journals devoted to organizations emerged (e.g. Administrative Science Quarterly started in 1956). In the case of strategic management, there is certainly evidence of a much longer history of the concept of strategy. Relevant works on strategy by people such as Clausewitz, Sun Tzu, and Machiavelli, among others, are hundreds of years old (see Freedman (2013)). However, their focus was not on strategic management, but usually on military and/or political strategy. The advent of strategic management as such came much later during the 20th century (Hoskisson et al., 1999). The potential challenge is that because management research still is in its developing stages, some theories might remain incomplete, contested or inaccurate.

The process of developing and testing theories can be long and intricate (Christensen and Carlile, 2009). As researchers develop observations, they might propose explanations on how or why things work the way they do (Priem and Butler, 2001). However, initial explanations can be limited, since they might not account for anomalies –situations in which the theory fails to describe the phenomena. As these anomalies get integrated into theories, theories evolve and get refined. Nevertheless, this is it not enough. Theories then, ideally, need to be tested in larger samples and varied contexts, and be contrasted against alternative explanations to understand their limitations

and boundaries. The latter enables theories to move from statements of correlation among variables to statements of cause and effect, which could have in principle some predictive power.

As a young academic field, management research and its theories tend to be either changing or being contested. An example would the Holy Grail of how to get competitive advantage. Originally, strategic management focused on internal factors to explain performance and competitive advantage (Lockett and Wild, 2014). However, later on industrial organization economics-based theories, such as Porter's forces framework, proposed that firms' performance depends on external industry-level factors (Porter, 1987). Nevertheless, as strategic research continued evolving, researchers realized that external conditions were not enough to explain the heterogeneity among firms' performances (see, for example, Quigley and Hambrick (2015)). Therefore, the resource-based view of the 1980s and 90s (Barney, 1991), came to provide a revived alternative framework, where firms' internal assets and capabilities explained again their performance and competitive (dis)advantage. Hence, a correlation emerged between having certain types of resources and achieving superior performance. More recently, researchers have contested this classic perspective on the resource-based view again, by arguing that what is perhaps more important is to consider the role that managers play in managing an organization's resources (Chadwick et al., 2014; Holcomb et al., 2009). This is an example of how management thinking in management research continues progressing and the potential dangers for practitioners from blindly following theories in the making.

A second problem regarding the link between management research and management practice is the biases that sometimes popular theories entail. Management researchers aim to understand how organizations, managers and strategy, among other things, work and how we could

explain them. Nevertheless, management researchers, as managers, have limitations. Among those limitations one of the most important is that they are trying to find overall explanations to complex phenomena. Thus, management researchers too look for ways to simplify things. Here a controversial inheritance from classical science exists, particularly from classical physics (McMillan, 2004). Galilean and Newtonian physics are an example of an outstanding accomplishment in the development of scientific thinking. Nonetheless, they are old successes, which have been, to a certain degree, superseded by later developments. Therefore, it could be dangerous to continue developing research as Galileo or Newton did. For example, classical physics tended to reduce phenomena by assuming that if "one can understand the parts of a system, one can understand the whole" (Marion and Uhl-Bien, 2001, p. 393). Other elements of the classical physics ethos was predictability and linearity. For physicists hundreds of years ago, the universe was basically a machine with various elements interacting in its functioning, and certain laws defining its behavior. Physicists back then would generally believe that, therefore, the universe could be understood and predicted in fairly simple ways, it was just an issue of discovering, mainly through mathematical models and experimentation, the laws of nature (Abreu Pederzini, 2016). The important point here is that physics itself has come a long way from that classical thinking, having a major inflexion point in the 20th century, with quantum theory and related conceptualizations. Yet, the problem seems to be that unfortunately the Galilean/Newtonian linear predictable thinking seems to continue pervading the ways in which a lot of people look at the world. The classical physics inheritance in management research, as in many other social sciences, is unmistakable, illustrated, for example, in the obsession with building sometimes over-simplistic cause-effect theories, making important simplifications when

theorizing, minimizing the role of complexity and maximizing claims of understanding of phenomena.

Various other issues emerge from management research inheritance of the old physicist mindset. The first one is that classical mechanics relied considerably on experiments, which can be fairly difficult to do in management. Arguably, a useful way to explore cause and effect relations is under controlled conditions, where most variables are held constant (i.e. ceteris paribus), while manipulating a dependent variable and observing and measuring the effect of this on an independent variable. The latter is difficult to do in management, where experimenting with organizations by submitting some to a treatment under controlled conditions could be simply unfeasible. Furthermore, experiments' implications for management practice can be limited, since controlled conditions of experiments differ considerably from the natural contexts of management practice.

Another issue is that as simplistic theories emerge and propagate, they can come to influence management practice even in spite of evidence against them. An example of the latter could be agency theory-based corporate governance (Mintzberg et al., 2002). This would argue that managers' role is "…to maximize shareholder value" (Ghoshal, 2005, p. 79). The problem, according to such perspectives, would be that managers might deviate from their maximizing shareholder value aim, and could try to maximize their own personal gains. From such corporate governance views, certain prescriptions became popular, including to "…pay managers in stock options to ensure that they relentlessly pursue the interests of the shareholders" (Ghoshal, 2005, p. 80). This seems simple and prescriptive, as an old-fashioned classical science theory. However, it has been documented that, on the one hand, managers' and organizations' aims are far more

complex than just maximizing shareholder value. And, on the other hand, there is evidence to suggest that stock options might not be as effective in improving performance as expected. Thus the scientific recipe does not seem to have worked.

Make no mistake, a lot of what is done in management research is valuable, but it might still be limited and constrained. Therefore, risks exist if management practitioners blindly follow management research theories.

Discussion

I started this manuscript by talking about understanding. As managers try to fulfill their function of internally integrating disparate contributions, while ensuring external environmental fit, they need to understand what is happening around them. Especially, they need to understand their internal and external environments. In order to understand, managers embark on an ongoing and perhaps never-ending learning process. A learning process that could help them interpret information and develop better understanding. I argued that as managers learn, and therefore, try to improve their understanding, they face complex phenomena that could make cause and effect relationships nebulous. The latter I have suggested contributes to the importance of at least three major roadblocks to managerial learning. First, the cognitive challenge, which is a consequence of people's cognitive limitations. As managers try to simplify their complex internal and external environments by interpreting information in the light of what they already know, they put some order on the world; however, potential threats emerge, especially when managers develop and reinforce simplistic and inaccurate schemas. Because of this, it was suggested that managers might benefit from the quality of carefulness when learning.

I then explored the misguiding challenge. Here, managers try to access more and/or better information to support their thinking. Nonetheless, risks exist as well in terms of the plethora of information that surrounds managers, some of which could be bogus. Because of this, managerial learning carefulness was suggested too. Finally, then, I analyzed the management research challenge. Here, managers could try to look to management research for better evidence. Nevertheless, because of the limitations, intricacies and constrains of management research, managers could risk adopting and following unhelpful or limited theories, especially if they are unaware of the current particularities of the field. Therefore, once again carefulness was advised.

It seems clearly illustrated from the analysis done in this paper that the quality of carefulness might be central to managerial learning. Carefulness arises as a desirable quality that promotes caution and prudence given the several challenges that exist in the managerial learning process. Barnett (2013) has argued that education comprises an opportunity to develop dispositions (i.e. "tendencies… to engage in some way with the world…" (2009, p. 433)) and qualities (i.e. "…the manifestations of dispositions…" (2009, p. 433)). An important disposition is the disposition to learn, which has been intensively argued for in this article. Nonetheless, a core contribution of this paper is that such a disposition to learn might be better manifested, in the case of managers, through a quality of carefulness. One of the main problems in managerial learning is that in spite of the complexity of organizations and their environments, sometimes managers develop simplistic understandings that are only based on an unreflective personal disposition to learn. The risk here, as we have seen illustrated in many examples, is not only that managers develop inaccurate understanding, but that they additionally could become overconfident of their limited understanding.

Now, the challenge is that for the quality of carefulness to be enacted, the disposition to learn needs to take on a different form, one that I would describe as of negative capability (see, Simpson and French (2006)). Originally described by the poet John Keats, negative capability is about "precisely the ability to tolerate anxiety and fear to stay in the place of uncertainty" (Eisold, 2000, p. 65). In short, it is the disposition not to do, or to do nothing. Since it could be argued that the root of the managerial learning challenges might lie not only in the weakness of a learning disposition, but also sometimes in the eagerness to learn, then, negative capability as the disposition to do nothing, juxtaposed with the disposition to learn, will likely produce a manifestation of carefulness (i.e. learning without rushing).

Furthermore, if the disposition to learn in negative capability were to be manifested through the quality of carefulness, the manifestation of not rushing learning would be worthless if not supported by the quality of being critical at the same time. In sum, it is clear that managers need also to be critical, and thus be pushed in their carefulness-produced calmness, to be skeptical and to learn how to question and assess information and evidence (Golding, 2011; Robinson, 2011). Therefore, critical thinking should be part of a carefulness-based learning ideal.

Finally, if critical thinking is about healthy skepticism, in order to figure out the world in a more effective way, then, it requires not only to learn to deny ineffective mental models, but to learn how to build more effective ones now. The latter is enabled if to this carefulness-based ideal, we add also the necessity for a deep learning style. Human beings tend to learn in various styles, mainly defined by two polar types: surface and deep (Biggs et al., 2001; Entwistle and McCune, 2004). Surface learning usually entails memorizing information that could be helpful in achieving goals, for instance when simply memorizing management fads and their recipes. By contrast, deep learning is about an intrinsic interest in understanding how things work. Usually deep learners

would make connections among concepts and ideas. Basically, in a carefulness-based learning ideal, a deep learning style would be suggested, since a deep learning style, by motivating the connection of various ideas, could help managers to detect misleading information, while enabling them to find or develop their own knowledge when knowledge coming from management research might not yet be adequate.

Not promoting a new ideal of what managerial learning entails is one of the great risks of management practice, as the current style of overconfident managerial learning is "…creating confident amateurs who believe they can become experts" through unreflective acceptance of fads and/or personal experience (Rousseau and McCarthy, 2007, p. 88). The consequences of the latter are manifold. Particularly important is the fact that overconfident inaccurate decisions can destroy other people's lives. We certainly saw this in the ramifications of the global financial crisis of 2008/09 (Abreu Pederzini, 2017a; Henisz, 2011). Before the crisis, managers had been promoting an economic system based on mistaken assumptions, and they thus, made decisions without full understanding of their implications. More importantly, sometimes managers insisted on reinforcing those decisions, which in the end cost many people –a lot of them innocent– their jobs, their savings, their homes, and their ways of living. Therefore, carefulness-based learning is not simply about critical thinking and deep learning, but about caution. A dictionary definition of carefulness conceptualizes someone as "careful of" if they are "anxious to protect (something) from harm…" (Dictionaries, 2015). Thus, by highlighting the quality of carefulness in a carefulness-based learning ideal, an attack is being made specifically against overconfidence and the potential harm that it could produce. If we want managers that think critically, first perhaps, we might need them to be cautious or careful, maybe even fearful, of the complexity of the world,

so that then they can engage in more critical and deep learning. Hence, carefulness-based learning emerges as a call to tackle managerial overconfidence.

Conclusion

In sum, there are three broad managerial learning challenges that emerge from the complexity that managers face. It could be the case that managers' incapacity to cope with these three broad challenges, emerges overall from the overconfidence that has characterized managerial learning so far. Thus, I hope that this essay could be an initial call for people to start working on promoting a new fad and fashion in management learning, which differs greatly from the previous ones: a carefulness-based learning ideal, which would entail the quality of carefulness, critical thinking and a deep learning style, underpinned by the dispositions to learn and negative capability. Now, a carefulness-based learning ideal could be instrumental in improving managers' performance when facing some of these challenges. Nevertheless, we must be honest and accept that human psychology might in the end not be capable/prepared to understand fully the complexity of the world (see, Abreu Pederzini 2017b). Thus, a first step of a carefulness-based learning ideal is to be careful about its on ambitious, accepting that complexity sometimes lies far beyond human capacities, and that even if carefulness could allow managers to cope with it more effectively, this does not mean that it would be the perfect tool. There might, in the end, not be a perfect tool, but simply imperfect and cognitively bounded human beings.

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