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**Walking the tightrope: the
balancing work of agency
in organizational routines**

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THESIS ABSTRACT

The thesis explores the internal dynamics of organizational routines, and in particular how agency works. The first paper analyses agency as decision making. A conceptual model shows how the internal dynamics of organizational routines generate uncertainty, information asymmetry and overload. In these conditions, to decide which action to perform, the agent adopts heuristics. The second and the third papers are based on ethnographic research conducted in a museum characterized by a monthly turnover of employees. The second paper explores how experience works in organizational routines. The interaction between experience-as-stock and experience-as-flow develops through the mechanisms of deviating, confronting and elaborating. The result is the *tolerance interval* which is the range of how much the routine can be stretched without collapsing. The third paper explores how control manifests in organizational routines to maintain them on track. Data shows that the activities in which the routine is embedded trigger performing agents to monitor each other, and thus to assume the role of controller.

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I.

Introduction

Agency is the engagement of organizational actors in the activities of the organization (Emirbayer & Mische, 1998) that are regulated by structures and rules. The thesis explores how agency works in the building blocks of the organization, organizational routines (Feldman & Pentland, 2003; Nelson & Winter, 1982). In organizational routines, agents constantly interact with routines structure, with the result of influencing the unfolding of such processes and determining their change and persistence. Three peculiar aspects of the involvement of agents in organizational routines are analysed: decision making, experience, and control.

In what follows, I present the motivation, the research questions and the key concepts of the thesis. I provide a general overview of the method and the content of the three studies that the thesis collects.

MOTIVATION AND RESEARCH QUESTIONS

Organizational routines are fundamental practices, too often treated as a black box, both from researchers and practitioners. On one hand, taking for granted the internal dynamics of routines makes blurry and incomplete the explanation of how organizational routines integrate into the bigger picture that the organization is. On the other hand, when managers miss looking at the micro-processes that happen within organizational routines, organizational routines can become an issue for daily organizational work, instead of an asset and support of it.

When it comes to understanding how agents are involved in organizational routines, three peculiarities of agency are usually taken for granted. The first one is the process of decision making. Agents who perform organizational routines are recognized to reflect and make sense about the routine structure (Dittrich & Seidl, 2018; Feldman, 2000; Feldman & Pentland, 2003). Even if they are human beings free to make decisions while performing the

routine, agents are not explored as decision-makers by previous studies, because the routine structure should guide the choice of which action to enact in the routine and minimize the dynamics and effects of decision making. However, the fact that the structure guides does not imply that it imposes a unique path to follow (Pentland & Rueter, 1994). Agents can decide what to do even when they have a structure that orients them, and so doing they can alter the routines internal dynamics. The second peculiarity is the experience. Organizational routines recurrence allows agents to collect experience on them and to use it for future performance (Pentland, Haerem, & Hillison, 2011; Turner & Fern, 2012). Experience is thus the outcome and input of organizational routines. Experience is usually assumed to be what is collected during the performance. Nevertheless, the experience is also the process of collecting and refers to how agents interact with the environment, and vice versa (Dewey, 1922, 1938). How experience develops during the organizational routines performance influences how agents behave while performing the routine. Finally, agency can express in the form of control. The persistence and stability of organizational routines are usually taken for granted. However, maintaining them on track (Schultz, 2008) is an effortful accomplishment. Formal and direct control can be ineffective (Prasad & Prasad, 2000) in doing so. Indirect forms of control trigger performing agents to preserve organizational routine stability and assume the role of controllers of it.

Three research questions emerge. In organizational routines, (1) how does decision making occur? (2) how does experience evolve? (3) how does control emerge and develop?

KEY CONCEPTS

The research builds on four theoretical pillars: 1. duality as the approach embraced to understand organizational reality, 2. the mutual interaction of stability and change, 3. organizational routines as the “space of action” where such an interaction occurs, and 4. the

relationship of structure and agency that allows organizational routines to evolve and persist in the organization.

Duality: a Pragmatist Perspective

Pragmatism refuses to approach reality as constituted by dualism, or by entities that are in opposition (Farjoun, Ansell, & Boin, 2015). Instead, the pragmatist thought embraces duality. Duality is “the twofold character of an object of study without separation.” (Farjoun, 2010, p. 203). For example, as argued by John Dewey (1922), means and ends are two different points of view through which observing the same reality (p. 232–233). The same perspective can be adopted to understand some organizational phenomena, such as organizational change and stability (Farjoun, 2010).

Stability for Change and Change for Stability

Organizations challenge organizational actors to stay in equilibrium among stability and change, like tightrope walkers.

Stability refers to continuity (Sturdy & Grey, 2003), without implying an “exact reproduction of novelty” (Hussenot & Missonier, 2016, p. 541). Stability leaves space for a certain level of variability and change. Change “is the condition of possibility for organization” (Tsoukas & Chia, 2002, p. 570). It regards transformation (Orlikowski, 1996), improvisation (Barrett, 1998; Orlikowski, 1996; Tsoukas & Chia, 2002); and innovation (Hussenot & Missonier, 2016).

Even if they appear to be as ontologically opposite, stability and change are strictly connected and dependent one another (Ansell, Boin, & Farjoun, 2015; Farjoun, 2010; Hussenot & Missonier, 2016; Leana & Barry, 2000). On one hand, stability supports change (Farjoun, 2010): stable processes allow the organization to develop (March, 1981, p. 563). On the other hand, change supports stability: to stay as they are, processes require to be supported by dynamics of change that make them adaptable (Farjoun, 2010) and flexible. As a result,

stability and change are mutually constitutive (Farjoun, 2010), simultaneous (Leana & Barry, 2000) and coexistent (Sturdy & Grey, 2003). Organizations live the paradox of the “(n)ever changing world” (Birnholtz, Cohen, & Hoch, 2007; Pentland et al., 2011): they change to remain the same (Ansell et al., 2015) and are stable to change. The duality of stability and change is at the core of organizational routines unfolding.

Organizational Routines

Organizational routines are recurrent patterns of interaction (Feldman & Pentland, 2003; Nelson & Winter, 1982) that coordinate groups of agents (Grant, 1996) to face particular organizational situations. Their role is crucial in supporting organizational activities, for example, among the others, organizational control (Becker, 2004).

Even if characterized by and providing high levels of stability, organizational routines evolve during the time (Nelson & Winter, 1982). They present an internal dynamism (Feldman, Pentland, D’Adderio, & Lazaric, 2016) that makes them changing and adaptive (Feldman, 2000; Feldman & Pentland, 2003). Such constant dynamism and evolution develop depending on how structure and agency mutually interact as a duality (Dionysiou & Tsoukas, 2013).

Agency and Structure in Organizational Routines

The structure of an organizational routine refers to “the rules about how to put parts of the repertoire together and the repertoire itself. These two elements constitute the structure that enables and constrains the actions that take place.” (Feldman, 2000, p. 613). The structure is the abstract idea of the organizational routine (Feldman & Pentland, 2003, p. 95) that functions as a map (Pentland & Feldman, 2007). Constraining, enabling and orienting (Cardinale, 2018), the structure directs agency.

Agency is “the temporally constructed engagement by actors of different structural environments - the temporal-relational contexts of action - which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive

response to the problems posed by changing historical situations.” (Emirbayer & Mische, 1998, p. 970). While performing the routine, agents think (Feldman, 2000; Feldman & Pentland, 2003) and make sense about it (Dittrich & Seidl, 2018). Agents also make decisions about how to perform the routine they are in charge of.

According to these processes and the experience -the familiarity with the routine performance (Pentland et al., 2011; Turner & Fern, 2012)- they have, agents can preserve or disrupt the truce that the organizational routine represents (Nelson & Winter, 1982), provides (Salvato & Rerup, 2017) and incorporates (Zbaracki & Bergen, 2010).

Agency and structure affect and interact with each other, realizing the dynamism that characterizes organizational routines (Dionysiou & Tsoukas, 2013; Feldman, Pentland, D’Adderio, & Lazaric, 2016).

METHOD

Whilst the research question relative to decision making is explored conceptually, the key concepts and the research questions on experience and control in organizational routines are explored empirically, through an ethnography in a museum. Abductive logic drives data collection and data analysis.

The Case

The museum Peggy Guggenheim Collection in Venice (Italy) organizes an Internship Program for students and young professionals. Some activities and organizational routines of the museum – such as guarding, giving art talks, and front office services- are performed by a group of almost 30 Interns. The group is renewed monthly, and it is constituted by Interns who just arrived in the museum and others who have been in the museum the month/s before. The museum organizes training, meetings and other activities to maintain monitored and on track Interns’ work. The Interns’ turnover and the effort of management in keeping the

organizational routines as they are make the case an interesting field to explore how agents' experience evolves and how control emerges and develops in organizational routines.

Ethnography and the Abductive Logic

Ethnography (Van Maanen, 1979, 2011) allows investigating human experience (Cunliffe, 2010). For four and a half months, I have overtly collected observations about the activities of the Internship Program. I focused my attention on some organizational routines that are performed by Interns. I have also observed those activities that affect these organizational routines. In particular, I have attended training activities, meetings, and informal conversations. To avoid "going native", I have not participated actively in what I was observing.

In 2011, I participated in the Internship Program of the museum. On one hand, the time gap between now and then allows me to create a distance with the field. On the other hand, the familiarity with the context allows me to be able to orient myself easily within the museum and with the rules, the procedures and the specific language that characterize the Internship Program. For example, I was already familiar with the daily schedule of Interns, I was prepared to manage the observations considering the overlapping of the activities, and I was able to follow all the conversations where a specific "slang" was used to identify roles, spaces, and activities.

If I approached the field with a certain level of familiarity, I approached it also with knowledge about the state of the art. In fact, the research design is driven by abductive logic. Abduction finds its roots in Pragmatism and suggests an approach of conducting qualitative research that is alternative and complementary to the inductive and deductive reasoning (Behfar & Okhuysen, 2018; Tavory & Timmermans, 2014; Timmermans & Tavory, 2012). Before approaching the field, abduction invites the researcher to be aware of the existing knowledge relative to the phenomenon of interest. While I was involved in collecting observations, I could theoretically recognize and categorize the major part of the facts that I

was observing. On one hand, I could rationalize the reality and get more understandings of it faster. On the other hand, in what I was observing, I could sooner discover and focus on what was still uncovered in the literature. So doing, I could recognize what was surprising in the case, without focusing on what the literature already explains. The abductive logic conveys in the abductive analysis that “refers to an inferential creative process of producing new hypotheses and theories based on surprising research evidence.” (Timmermans & Tavory, 2012, p. 170).

THE STRUCTURE OF THE THESIS

The thesis focuses on how agency works in organizational routines. It consists of three papers that explore respectively how decision-making occurs, how experience evolves, and how control manifests in organizational routines.

The first contribution is a conceptual analysis that explores agency as decision making. In organizational routines, agents act reflecting and making sense of what is happening. They have the freedom to choose which action to perform even if bounded by some limits that the routine imposes. Deciding how to enact the routine alters its unfolding in the short and long term. However, how decision making occurs within organizational routines is still blurry. The paper aims at filling this relevant gap and presents a model that shows how a certain level of uncertainty characterizes the internal dynamics of the organizational routine. This uncertainty pushes the agent in processing a heuristic decision making, having the agent to face information asymmetry and overload.

The second and the third papers are based on the ethnographic research that I have conducted at the Peggy Guggenheim Collection.

The second paper explores a dynamic property of agency that constitutes the input and the output of recurrent processes such as organizational routines: experience. Experience is the constant interaction of experience-as-stock -the familiarity that agents gain performing the

routine- and experience-as-flow -the ongoing transaction between the individual and the environment. Experience-as-stock is relevant for organizational routines, and it depends on experience-as-flow. However, little is known about how the one interacts with the other and vice versa. The paper questions how experience -as duality- works in organizational routines. The findings suggest that from performance to performance the interaction of experience-as-stock and experience-as-flow provokes the development and updating of the *tolerance interval* that represents the range of how much the routine can be stretched without collapsing. The flexibility and stability of the routine depend on how experience produces, questions, and alters the routine's internal variety.

From the findings of the second paper, the third one emerges. Mechanisms of control among peers are fundamental for guaranteeing the stability of the performance of the routine. However, given the recurrence of routines and the fact that they are ubiquitous in the organization, not all of them are monitored by direct mechanisms of control, but they are influenced by indirect systems of control. How control manifests during the performance of the organizational routines is at the centre of the paper. Data shows that agents who perform the routine are triggered to shape their role that overcomes that one assigned by the routine. From performers, they behave as controllers during the routine performance, activating peer monitoring. The seed of peer monitoring comes from the embeddedness of organizational routines in other organizational activities.

The following three chapters present the three investigations in depth. The last chapter of the thesis is a reflection on the contributions that the overall research project provides.

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II.

First paper. Decision making in organizational routines: when the heuristics logic avoids the routine breakdown

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ABSTRACT

This paper studies the internal dynamics that characterize organizational routines. Despite the behavioural boundaries that they create, organizational routines define spaces of action where agency expresses itself beyond just thinking and interpreting. In fact, the organizational routine triggers an active engagement of agents that takes the form of decision making while performing the routine, which implies shaping its very structure. Moving forward from considering decision making within organizational routines as a black box, we explore how agency takes the form of decision process while enacting the routine. We develop a model of agency where the internal dynamics of organizational routines provoke uncertainty, which in turn affects the processing of information and shapes a heuristic decision process. The analysis of the individual and collective nature of decision making in the organizational routine shows that heuristics logic can avoid the breakdown of the routine and that the relative positioning of agents in the performance matters in determining variation and persistence.

Keywords: organizational routines; agency; heuristics; microfoundations; agency and structure

Organizational actors animate organizational life, deciding how to act and deal with organizational processes. Among them, we find the building blocks of the organization, organizational routines (Feldman & Pentland, 2003; Nelson & Winter, 1982). The present research investigates the involvement of agents in the performance of organizational routines. Organizational routines are recurrent patterns of interaction (Feldman & Pentland, 2003) characterized by an internal dynamism (Feldman, Pentland, D'Adderio, & Lazaric, 2016). The routine structure presents spaces of action for the agents who perform the routine (Pentland & Rueter, 1994). Agents are mindful participants (Feldman, 2003) who reflect on what they are doing (Feldman, 2000) and make sense of it (Dittrich & Seidl, 2018). Agents are also decision-makers (Nutt, 1976): they develop judgment (Emirbayer & Mische, 1998), or an evaluation of the circumstances, that is the premise of the decision-making process (Simon, 1947, 1955). During the routine performance, the decision space of agents is crafted by the organizational routine that offers “a set of possible patterns” (Pentland & Rueter, 1994, p. 491) of interaction. Agents may decide to perform an action among the existent ones or choose to create alternative options for performing the routine (Feldman, 2000; Langer & Moldoveanu, 2000). Therefore, decision making has a crucial role in determining organizational routines' variety, change and persistence.

However, in organizational routines studies, decision making is taken for granted (e.g. Dittrich, Guérard, & Seidl, 2016; Turner & Rindova, 2012). Organizational routines are considered to support decision making and problem-solving reducing uncertainty (Becker & Knudsen, 2005; Loch, Sengupta, & Ahmad, 2013), but how decision making occurs in the internal dynamics of organizational routines is still blurry. Nevertheless, to understand why organizational routines change, persist and decay it is important to analyse how the process of decision-making works (Winter, 2013; Wright, 2016). To fulfil their role during the routine performance, agents implement an action. To do so they decide which specific action to

perform among a set of possible actions (Pentland & Rueter, 1994). When making a decision, agents are affected by and affect the features of the process in which they are involved: the organizational routine. Agents are constrained, enabled and oriented by the routine structure (Cardinale, 2018; March, 1981), but they may also ultimately alter it through the decision of which action to perform. Agents are also influenced by the other participants in the routine, as it is a collective process (Becker, 2004). Each decision has an impact on the features of the routine performance and on the actions of the other participants.

The purpose of this paper is to uncover how agents make decisions in organizational routines, describing how the process of decision making occurs when agents are bounded in highly stable organizational structures that are usually expected to provide a unique ready-made decision to implement. We propose a model that formalizes organizational routine performance as characterized by *input uncertainty* and *procedural uncertainty* that push the boundedly rational agent (Simon, 1947, 1967, 1979) in responding with a heuristic behaviour due to information overload and asymmetry. The heuristics emerge as an essential mechanism of organizational routine performance. We provide three main contributions. Firstly, whilst prior literature emphasises that heuristics are an organizational response that substitutes the organizational routine (Suarez & Montes, 2019), we show the coexistence of the two processes: heuristics support the unfolding and persistence of organizational routines. Secondly, we contribute at understanding organizational routines internal dynamics (Feldman, Pentland, D'Adderio, & Lazaric, 2016) and their microfoundations (Felin & Foss, 2009; Wright, 2016) clarifying how individuality is shaped within them and maps into the existence of a collectivity of agents and a collective purpose. Finally, we posit that if agents' power affects organizational routines, also the structural position that agents have in performing the routine is relevant.

ORGANIZATIONAL ROUTINES: AGENCY DYNAMICS AND DECISION MAKING

Agency Dynamics in Organizational Routines

Organizational routines are sets of recurrent patterns of interaction (Feldman & Pentland, 2003; Pentland & Rueter, 1994), characterized by the endogenous dynamism that the engagement of actors generates (Feldman et al., 2016). The routine structure, or the ostensive dimension of the routine (Feldman & Pentland, 2003; Latour, 1986), enables, constrains and orients the action of agents (Cardinale, 2018; March, 1981), acting at two different levels. At first, the structure delineates the shape that each phase of the routine should assume in the performance. Secondly, the structure designs the interactions among the phases of the routine. Therefore, the structure provides an ideal and aspirational map that agents can follow in performing the routine (Pentland & Feldman, 2007). In enacting this map, there is “space of possibilities for action” (Pentland & Rueter, 1994, p. 491).

The performative dimension of the routine (Feldman & Pentland, 2003; Latour, 1986) realizes these possibilities. The phases that constitute the routine, or subroutines (Pentland & Rueter, 1994), can be performed in different ways by the agents. As a result, each performance of the routine can be different, even if similar to the others given agency.

Agency is the engagement of organizational agents in organizational activities through habit, creativity and judgement (Emirbayer & Mische, 1998). Enacting the structure of the routine, agency shapes and continuously updates it (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003). For example, in a study of sushi bars, Yamauchi and Hiramoto (2016) observe how the structure of the routine of serving and grabbing food is generated during the performance when agents adjust the structure continuously. On one hand, agency is what makes organizational routines persistent (Howard-Grenville, 2005). On the other hand, the power of agency triggers change (Feldman, 2000), introducing novelty and making organizational routines ecologically rational, and so more adaptive and flexible. Agency represents the seed of instability of organizational routines (Anand, Gray, & Siemsen, 2012)

and may unfold in very different ways, which can be classified according to the form taken during the performance: automatism and mindfulness or proactiveness.

The recursiveness of organizational routines could lead agency to be characterized by automatism, or a less mindful attitude (Levinthal & Rerup, 2006). This automatic engagement relies on the past experience that each agent has collected about the routine and that is stored in their memory. The memory contains the knowledge related to the routine in the individual mind of agents (Cohen et al., 1996). Procedural memory regards knowing how to perform the routine (Cohen & Bacdayan, 1994). Declarative memory, or “know-what”, supports agents in making sense of the circumstances (Miller, Pentland, & Choi, 2012). Transactive memory is knowing who the subjects involved in the routine are and which is their role (Argote, Aven, & Kush, 2018; Argote & Guo, 2016; Miller, Choi, & Pentland, 2014; Miller et al., 2012).

In enacting the structure of the organizational routine, agency is also about “drawing new distinctions” (Langer & Moldoveanu, 2000) and new repertoires (Feldman, 2000), or undertaking proactiveness. Mindfulness (Feldman, 2003) allows agency to take a creative twist in performance. Creativity is about the generation of novelty (Amabile, 1988; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Woodman, Sawyer, & Griffin, 1993) and expresses deliberation that is an “experiment in making various combinations of selected elements of habits and impulses, to see what the resultant action would be like if it were entered upon.” (Dewey, 1922, p. 190). At first glance, the idea of creativity tends to clash with the idea of routine (Ford, 1996): creativity is about providing novelty, whilst the recursiveness of the organizational routines produces an expected outcome. However, thanks to agency, creativity is part of organizational routines, so that a duality (Sonenshein, 2016) -rather than a dualism (Ford, 1996)- exists between them. On one hand, creativity “rests in the perfection of the routine and the practical difficulties of action” (Dalton, 2004, p. 604). In practicing organizational routines, agents reflect (Feldman, 2000), and make sense of what they are doing

(Dittrich & Seidl, 2018; Feldman, 2000; Howard-Grenville, 2005). Organizational routines dynamics may trigger agents to create new possibilities of action. On the other hand, creativity can support agents in changing the regular course of the routine, given some adverse circumstances that could put an end to the routine existence.

Another instance of mindfulness or proactiveness of agency involves judgement. Judgement refers to the evaluation of the circumstances, that are the premises of decision, in Simon's words (Simon, 1947). In fact, judgement is implicitly aimed at performing a decision-making process (Simon, 1947). Organizational routines and decision making are strictly related.

The Importance of Decision Making in Organizational Routines

Decision making is the process of choosing a particular alternative for implementation (Nutt, 1976, p. 84). It is based on the elaboration and evaluation of expectations (Gavetti, Greve, Levinthal, & Ocasio, 2012) and aspirations (Simon, 1967), and on sensemaking (Brown, Colville, & Pye, 2015; Weick, 1993). Decision making happens through an organized system of relations (Simon, 1947) established and carried on by decision-makers. Decision-makers can be top managers as well as workers at the low levels of the organizational hierarchy (Bobbitt & Ford, 1980). The latter can act from within the processes, shaping the structure they are involved in (Bobbitt & Ford, 1980). In making decisions, the decision-maker is boundedly rational (Simon, 1947, 1967, 1979) and "influenced by uncertainty" (Nutt, 1976, p. 89). The greater the uncertainty, the more numerous the possibilities the decision-maker has to evaluate when choosing how to act.

Organizational routines emerge as a ready-made solution when agents have to deal with a certain kind of organizational situations. They provide a shared and known behavioural response – a rule of behaviour – (Cohen et al., 1996). Organizational routines support organizational decision making (Becker & Knudsen, 2005; Cyert & March, 1963) and problem-solving (Loch et al., 2013), proposing a designed pattern to follow to face a particular

kind of problem. The organizational routine therefore guides the agents in choosing how to perform the routine, suggesting a logic, a rationale governing the choice of action. When agents follow the routine logic to make a decision, they act within the perimeter of actions that the organizational routine designs.

Sometimes decision-making processes follow a different logic than that one suggested by the organizational routine. The logic of the organizational routine can work when the context presents some peculiar features. However, the features of the external context in which the routine takes place are not always the same. For example, Suarez and Montes (2019) report that during the escalation of Mount Everest, some unexpected or changeable characteristics of the external environment make the organizational routines participants decide to breakdown the routines and change them undertaking other organizational responses. At other times, the external context of the routine is stable.

In these occasions, the internal dynamics of the organizational routine (Feldman et al., 2016) can change independently from what happens – or not happens- in the external context, and make the organizational routines unfolding variable. For example, agents create a new action in the routine, in an unpredicted way (Turner & Rindova, 2012). Unpredictability and variability increase and are faced by agency. Agents decide to expand the set of possible actions to perform given their creativity in implementing new actions and their reactivity in facing unusual organizational routines dynamics. In both cases, new opportunities for choice are generated (Cohen, March, & Olsen, 1972). During the performance of the routine, agents have to decide which of these possible choices to implement. Thus, some decision-making process takes place within the unfolding of an organizational routine, and it can affect its structure.

During the organizational routine performance, the decision-makers are the agents who participate in it. Agents have to select an action to perform that results in “the emergence of a unified preference out of competing preferences” (Dewey, 1922, p. 193). This process can be

thought of as a simple one if it is understood as a fixed response to some defined stimuli that characterize a stable environment (March & Simon, 1958). However, even if the organizational routine takes place in a quite stable external environment, the internal one can vary, so that performing agents are challenged to decide how to perform their task from a set of possibilities (Pentland & Rueter, 1994).

During organizational routines performance, the selection of the action to enact is not always an automatic process with a straightforward outcome. Some impulses drive decision making in organizational routines and contribute to changing it or making it persistent (Winter, 2013). Understanding how these impulses are generated and managed in organizational routines can help in understanding what happens during their performance (Wright, 2016) and ultimately how organizational routines are endogenously maintained and modified. This paper participates in the debate regarding the internal dynamics of organizational routines (Feldman et al., 2016) and develops a model that illustrates how decision making unfolds during the organizational routine performance.

A MODEL OF DECISION MAKING IN ORGANIZATIONAL ROUTINES

We focus on agency in the form of decision making in organizational routines. We assume that agents are not only able to think, make sense and imagine new possibilities for performance, but are also empowered by the freedom of making decisions. Thus, we explain variation and persistence of organizational routines, modelling and analysing the endogenous process of decision making, but disregard the outcome of this process. In the analysis, we do not impose judgement on the possible choices, but we focus on how decisions are made.

Making Decisions in Organizational Routines

We consider a recurrent pattern of interactions that takes place in a stable organizational environment. The only sources of change are endogenous. We are aware that the context-dependency of organizational routines can affect their internal dynamics (Howard-Grenville,

2005). However, we disallow for exogenous shocks because we are interested in understanding how decision making unfolds in the organizational routine independently from the stimuli coming from the external context. We do not extend the definition of agency to non-human agents (Bapuji, Hora, & Saeed, 2012; D’Adderio, 2008, 2011). Even if the latter are able to evaluate and select alternatives, their capability depends on choices made by the humans in charge of them. Thus, focusing on how decision making occurs as a form of human agency produces insights also for understanding the role of non-human agents in routine dynamics. We assume that agents are fully aware of the structural components of the routine. However, agents do not have a perfect overview of how the overall routine is performed from time to time. In fact, their position in the structure of the organizational routine limits their view over the entire routine performance (LeBaron, Christianson, Garrett, & Ilan, 2016). The decision problem each agent faces is selecting how to perform the phase of the routine they are in charge of.

The setup of the model. We consider three phases of an organizational routine. For the sake of simplicity, the three phases are sequential, and each phase corresponds to only one task performed by an agent.

While performing the routine, agents are decision-makers and are characterized by a subjectivity (Feldman & Pentland, 2003). The subjectivity summarizes all the individual characteristics of the agents: their creativity and experience, and their cognitive ability and motivational orientations (Bobbitt & Ford, 1980). These features result from the bounded nature of the agents’ rationality (Simon, 1947, 1967, 1979) and so from their cognitive and behavioural biases (Tversky & Kahneman, 1974).

Given that the organizational routine implies interactions, phases depend on each other. This structural dependence exists between any two following phases, and it can have different

levels of intensity that are determined by the structure of the routine. The interdependence of phases is an interdependence among the agents in charge of those phases.

In every phase, tasks can be enacted through different actions (Feldman & Orlikowski, 2011; Pentland & Rueter, 1994). As Figure 1 shows, some actions are already part of the history of the routine – even deviations or actions made by mistake- having already been performed (Pentland, Feldman, Becker, & Liu, 2012). They constitute the set A_p whose boundary is generated and updated by the actions of agents at every performance of the routine. Given the agents’ partial view on the routine performance, how they build set A_p – or in other words, the actions that every agent recognizes to be part of set A_p - differs from agent to agent. Other actions could potentially fulfil the task even if they have not been performed before. These actions constitute set A . Its boundaries are defined by the organizational environment in which the routine is embedded (Howard-Grenville, 2005; Mutch, 2016; Sele & Grand, 2016) and by the structure of the routine itself. The structure of the routine constraints the context of action of the decision-makers, and so the set of choices that they are allowed to consider (Bobbitt & Ford, 1980).

Insert Figure 1 about here

Decision making, in between phases. Figure 2 represents the unfolding of the decision-making process within a phase (phase n) -among two phases (phase $n -1$ and phase $n+1$)- of the organizational routine. The process of deciding which action to perform unfolds in three sequential steps: processing, interpreting and selecting (Figure 2). Hereunder, we discuss this process, step by step.

Insert Figure 2 about here

The sequential structure of the organizational routine implies that the action chosen by the agent at the previous phase represents the input for the current phase, or the input-action (Figure 2). The input-action represents the basis on which agents at any intermediate phase can build upon to search for and decide which action to perform to fulfil the task. At first, agents need to understand the input-action (Pentland et al., 2012). We call this first evaluation *processing* (step 1 in Figure 2). How input-action is rationalized by agents plays a fundamental role in the unfolding of the decision-making process.

Agents elaborate expectations on the routine they perform (LeBaron et al., 2016) that influence the decision-making process (Cyert & March, 1963; Gavetti et al., 2012). Expectations originate from the fact that agents perform a specific routine recurrently in the organizational daily life. As a result, they collect memories of the actions performed (Cohen & Bacdayan, 1994; Miller et al., 2014; Miller et al., 2012). We call the memory related to the routine set A_p . What is not in agents' memory, as actions that do not belong to the history of the routine, is categorized in a different domain – the set of the possible actions not yet performed, called set A . Agents process the input-action comparing it with the actions stored in their memory – (set A_p). The existence of different ways in which the routine has been performed creates some ambiguity concerning what agents may expect. Performing agents are naturally adverse to ambiguity and are embedded in a process – the organizational routine - that exists to decrease uncertainty and make agents as familiar and comfortable as possible with what they are doing (Turner & Fern, 2012). Familiarity breeds from repetition: the more an action has been performed, the more the agents become familiar with it. During the organizational routine performance, agents look for familiarity and implement their preference for the familiar categorizing the actions of set A_p on the base of their frequency in performances. The agents adopt this ordering logic. As a result, agents determine the most performed action

up to that point – the most familiar action. This action is the one that agents expect to receive as the input-action.

Agents may be confronted with input-actions that differ from their expectations. In such a case, agents measure the distance between the expected action and the input-action (2), determining an observed distance (3). If the input-action belongs to the history of the routine, being an action that has been performed before, then the distance lies within the boundaries of set A_p . However, previous agents may deviate from the already performed actions (Feldman, 2000). When previous agents perform actions never implemented before, the distance increases and overcomes the boundaries of set A_p . Agents categorize the action as belonging to the set A – the set of possible actions that have not been yet performed.

At the following step, *interpreting* (step 2 in Figure 2) (Feldman & Pentland, 2003), agents make sense of the observed distance to define the impact that the input-action has in performing the current phase. In fact, “the perception or awareness of a discrepancy between an initial and desired state is necessary before a decision maker will act” (Bobbitt & Ford, 1980, p. 17). Yamauchi & Hiramoto (2016) observe an interpreting mechanism that resonates with the one proposed in our model. During the unfolding of the routine of ordering food in a Japanese restaurant, the chef asks the client what they want to drink and the client answers with a laugh. Before enacting the following phase, the chef interprets the laugh as the difficulty to answer to the question. The goal of *interpreting* is developing a meaning regarding the observed distance and the input-action.

The interpretation of the observed distance maps into a perceived distance. This distance may be larger or smaller than the observed one depending on two elements (4). The first one is the structural dependence between the current phase and the previous one. Organizational routines are processes of interaction among tasks that are connected and not completely disconnected from one another (Feldman & Pentland, 2003). Thus, the higher the

dependency with the previous phase, the more the input-action has a direct impact on the task that the agent has to perform. The perceived distance will be larger when two phases are highly dependent, making it larger than the observed one. The second element playing a role in this step is the agent's subjectivity. The subjectivity allows elaborating understandings on the organizational routine performance (Feldman & Pentland, 2003, p. 109). The extension of the subjectivity results in the likelihood of being flexible and adaptable relative to deviations from the past course of action. Thus, the greater the subjectivity the more the agent is able to understand the variation and the smaller the perceived distance will be compared to the observed one.

When the perceived distance lies within set A_p , the agent can adopt the organizational routine logic -the ranking-. Agents are in a condition of *input certainty* (5) that allows the agents to assess the next step. When the perceived distance goes beyond set A_p , the agents enter the domain of *input uncertainty* (6) and have a *reaction*. When the agents' subjectivity is high, the *reaction* is positive and agents are more able to deal with the gap between the input-action and the expected one (6b). This implies that the agents are able to continue forward to the last step of *selecting*. The lower the subjectivity, the lower the chance of being able to understand the input-action and thus to have a positive *reaction*. When the reactivity of agents is not able to rationalize *input uncertainty*, the consequence is the routine break-down (6a).

If the perceived distance and the *reaction* allow agents to make sense of the input-action, agents must select which action they wish to enact to perform their phase. We call this step *selecting* (step 3, Figure 2). At first, agents rationalize which is their most performed action adopting the ordering logic suggested by the organizational routine (7). After that, the process of *selecting* occurs according to the combined effects of the structural dependence with the following phase and the perceived distance (8).

The agents' awareness that their decision occurs in a sequence where their phase is also structurally linked to the following one affects the process of *selecting*. The tighter the dependence, the larger the impact of a consistent deviation from the most performed action on the possibility of the following agents to perform their phase.

The perceived distance contains the agent's subjectivity and the dependence with the previous phase. Through it, *selecting* incorporates *input certainty* or *input uncertainty*. Agents can deal with two mutually exclusive decision contexts. The first is the set that the most performed action belongs to (set A_p), the other one is the set of the possible actions that have not been performed yet (set A).

When the perceived distance brings decision-makers to stay within the familiar set of previously performed actions (set A_p), the routine dynamics lead agents to perform one of the previously performed actions. We refer to this as *procedural certainty* (9). Agents can use the logic of ordering actions suggested by the routine to make a decision. Agents apply the ranking logic that previously supported them to identify the expected one (9a).

When the perceived distance leads to exploring set A , agents can be unable to perform their task according to what they have done in the past. Agents are in a condition of *procedural uncertainty* (10). Agents are pushed outside the decision context where the ordering logic works (set A), or outside the boundaries of the decision-making context rationalized by the organizational routine. Agents respond to this uncertainty through the *reaction*. If the agents' *reaction* does not allow them to see a possible way to face uncertainty, the routine breaks down (10a). If otherwise, through *reaction*, agents are able to reassess the nature of the decision-making context (10b). Despite being in a different context, agents face the same issues that organizational routines set out to address: uncertainty, information overload, and the lack of a holistic view on the organizational routine (Lindkvist, Bengtsson, Svensson, & Wahlstedt, 2017). When agents are pushed outside the boundaries determined by the routine logic, they

are on their own to devise which strategy to choose, as they cannot anymore rely on the organizational routine logic to suggest a path. The agents are in a domain populated by the information that they know about the overall organization and not only about the organizational routine. What they know is limited to their position in the organization and in the routine. Among the set of all the possible actions that could be implemented but that have never been experimented as part of the routine, agents recognize some possible actions. The more they know and the larger their subjectivity, the more the number of alternatives that the agents identify as possible to perform. The agents are in a decision-making context featured by uncertainty, information asymmetry and overload. Therefore, they address the decision problem through heuristic decision making (10c).

Heuristics are simple solutions for uncertain contexts (Neth & Gigerenzer, 2015) where it is impossible or overly costly to acquire and process all information (Gigerenzer & Goldstein, 1996), and accommodate for a “beneficial degree of ignorance” (Ortmann, Gigerenzer, Borges, & Goldstein, 2008, p. 994). The heuristics logic is undertaken according to the extent of agents’ *reaction*, or the responsiveness in capturing the opportunity to explore a new information space, through the adoption of a new logic. According to *reaction*, agents can select one action in set A with more or less probability and are unable to choose any action with complementary probability.

The structural dependence and the perceived distance have opposing influences on the possibility for agents to devise solutions that do not currently belong to the history of the routine. The former has a negative influence. The higher is the structural dependence, the closer to the usually performed actions these solutions need to be. On the other hand, the perceived distance has a positive effect. The larger the perceived distance the more an agent is pushed to stray away from the usually performed action and pursuit cultural shoring (Bertels, Howard-Grenville, & Pek, 2016).

Decision making, at the extremes. When looking at the first phase of the routine, agents cannot base *processing* and *interpreting* on any input-action or be influenced by any structural dependence with the previous phase given that there is no previous phase. The existence conditions of decision making in between phases are therefore not valid anymore in this phase of the routine. However, agents can still deviate from the usually performed action, but *reaction* will be the only driver. Investigating the waste collection routine, Turner and Rindova (2012) report that one of their informants states: “If I’m running my route the same way every day, completely every day and I’m seeing the same thing, I might change myself up...if I want to change it up one day and work it a different way, I will. If it works out fine for me, I’ll do that.” (p. 31). When agents see the opportunity to perform the routine in a better, or simply different, way, they deviate from what they usually do. New courses of action expressing change may be provoked directly by the subjectivity and not only necessarily by what has been received from the others. The higher their subjectivity, the more likely agents will be to explore further solutions that lie beyond the set of already performed actions (A_p). This generates the possibility that an initial perturbation is introduced already in the first phase.

Having looked at how change and variation can be introduced by the agents in the first phase of the routine, we now turn to look at the agents in the last phase. They process and interpret the input-action coming from the previous phase but are not affected by the dependence with the next phase, given that they are performing the last phase of the routine. This implies that, in the last phase, agents fully factor in the perceived distance and *reaction*. The missing dependency with the following phase makes agents more likely to indulge in the perceived distance that can take them outside the boundaries of set A_p for all levels of their subjectivity. Although the routine is endogenously constructed, exploration and expansion outside the boundaries of set A_p have smaller direct consequences when performed at the last phase. The lack of the following phase reduces the concern that a non-usually performed action

may pose direct harm to the implementation of a task of another member of the collectivity. A new action simply expands the set of performed actions without affecting other agents in the routine.

DISCUSSION

The paper opens the black box of organizational routines and explores how agency works within them, focusing on the process of decision making. Our model shows that, during the organizational routine performance, agents express their subjectivity relying on heuristics logic of making decisions and that the potential of this subjectivity is triggered by the other participants and challenged by the boundaries of possibility that the organizational routine creates. The model analyses an organizational routine as simplest as possible. For this reason, the model can be extended to comprehend how decision making happens in more complex organizational routines.

In this section, we discuss the nature of the decision-making logics carried on during the unfolding of the routine, we analyse the effect of decision making for the overall routine, and we uncover the determinant role that the agents' positioning has in determining the course of organizational routines. In the section below, we discuss each of these points suggesting room for future research. We finally highlight the main contributions of the research.

Heuristics Logic in Organizational Routines

The analysis shows that, during the performance, the internal dynamics of organizational routines can create two different types of decision-making context. The first one is familiar to the agents because it frequently occurs during the organizational routine repetitions. The second one puts the agents in a condition of uncertainty, information overload and asymmetry.

The two contexts require the agents to adopt two different logics to handle them. In the first decision-making context, the logic usually adopted while performing the routine works because the agent is in a familiar environment.

When agents are pushed outside this comfort zone, they are in the second type of decision-making context. The traditional logic used during the routine performances does not fit with the features of this context, where the agents have to deal with uncertainty. In analysing the routine of changing towels in hotels, Bapuji et al. (2012) discover how agents can face some levels of uncertainty at the moment in which they have to interact with the outcome of the action of the previous agent. We recognize two types of uncertainty, *input uncertainty* and *procedural uncertainty*. The first one represents the uncertainty relative to what can be received (Hoffer Gittell, 2002), the second one refers to the uncertainty of how proceeding to decide which action to perform. In both cases, the amount of potentially available information increases. The agent needs to economize on such an amount of information to escape from uncertainty and find a solution to the decision problem, or to the selection of the action to enact. Agents are, in fact, boundedly rational decision-makers (Simon, 1947, 1967, 1979) who have to search for solutions: “information or choice alternatives do not naturally flow to them.” (Gavetti et al., 2012, p. 5). Thus, the internal dynamics of organizational routines trigger heuristic behaviour.

A heuristic is “a strategy that ignores part of the information, with the goal of making decisions more quickly, frugally, and/or accurately than more complex methods.” (Gigerenzer & Gaissmaier, 2011, p. 454). Heuristics are simple solutions for uncertain contexts where it is impossible or overly costly to acquire and process all information. Heuristics imply altering the information space used to make a decision according to a principle of ecological rationality (for a review on research on heuristics see (Gigerenzer & Brighton, 2009)).

Heuristics and organizational routines are traditionally seen as two different and mutually exclusive mechanisms (Bingham & Eisenhardt, 2011; Cohen et al., 1996; Suarez & Montes, 2019). The organizational routine addresses a narrow problem (Cohen et al., 1996) and provides the mechanisms of coordination through which solving it (Feldman & Rafaeli,

2002; Hoffer Gittell, 2002). A heuristic is an answer to some similar issues, is a more serendipitous and less constraining process (Bingham & Eisenhardt, 2011), and it can be associated with intuition (Dane & Pratt, 2007). Nevertheless, heuristics and organizational routines share a common origin - the experience (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003)- and they are both context-dependent mechanisms (Bingham & Eisenhardt, 2011; Bingham & Haleblian, 2012).

Our model shows that despite some dissimilarities, organizational routines and heuristics may coexist and even be mutually inclusive. Heuristics are part of the organizational routine unfolding, and they can avoid the routine breakdown. Being a practice or a performative process (Feldman & Pentland, 2003), the organizational routine can generate those dynamics and experiences that trigger heuristics behaviour. Heuristics, in fact, are “at the heart of high performing organizational processes” (Bingham, Eisenhardt, & Furr, 2007, p. 40), among which organizational routines. Heuristics interact with the organizational routine setting allowing for the exploration of new possible options for performing the routine. Agency, as decision making in organizational routines, expresses its power through the ability to formulate heuristics strategies when the logic and the points of reference given by the organizational routines logic are not available anymore.

Heuristics strategies, as an expression of agency, support the organizational routines unfolding in two strictly related ways. At first, heuristics improve the variety of the possible actions that could be implemented during the performance of the routine. As a consequence, heuristics strategies contribute to organizational routines persistence and survival, avoiding their breakdown, and making them more flexible. Heuristics guide agents in discovering new performative solutions. Secondly, the power of heuristics in the organizational routines unfolding suggests that to maintain organizational routines on track (Schultz, 2008) and to successfully transfer them (Birnholtz, Cohen, & Hoch, 2007), it is not only necessary to pass

on the structure of the routine but also those heuristics logics that could be used in order to preserve the unfolding of the routine.

The present investigation does not discuss the typologies of heuristics undertaken during the routine performance, focusing instead on exploring the procedural unfolding of them in the internal dynamism of the organizational routine. Future research could take an outcome perspective and explore how the content of the desired outcome of the routine shapes the decision-making process. In other words, future investigations could focus on how the ends of the routine affect the means through which they are reached. This analysis can shed new light on the relationship between organizational routines and heuristics (Bingham & Eisenhardt, 2011; Bingham et al., 2007), predicting if and how some specific heuristics affect change or persistence of organizational routines.

The Sequential Effect of Decision Making on Decision Space

The analysis of the unfolding of decision making suggests that the organizational routine is more than the sum of the individuals who take part in it. The routine survives as a collective accomplishment (Dionysiou & Tsoukas, 2013), where the decision-making process fulfils the role of reinforcing the connections of the network of individuals participating to routine performance (Feldman & Rafaeli, 2002): “Decision-making in organizations does not go on in isolated human heads. Instead, one member's output becomes the inputs of another.” (Simon, 1947, p. 25).

Agents are characterized by their own subjectivity that makes them unique decision-makers during the organizational routine unfolding and able to interact differently with it. Despite the central role of individual subjectivity in the decision-making process within organizational routines, its power is strictly affected by the connections with the other participants in the routine performance (Feldman & Rafaeli, 2002; Hoffer Gittell, 2002). For example, in between phases, the shape of the decision-making space of the agent is influenced

by the action of the previous agent and the structural dependence with the following phase. Understanding the impact of individual subjectivity requires recognizing its influence and interaction with the other subjectivities that populate the organizational routine. The sequential decision-making process ties agents together and through the exercise of their freedom to make a decision, agents affect the decision space of the following participants. As a consequence, agents create the opportunity to develop new actions to perform the routine.

Future research can devote more attention to decision making as a tool that the agents can strategically exploit to reconfigure the ties of the network that the organizational routine creates. The power dynamics within organizational routines are relevant to understand how recurrent patterns of interactions evolve in time (Feldman & Pentland, 2003; Feldman & Rafaeli, 2002; Howard-Grenville, 2005; Safavi & Omidvar, 2016).

Positioning Agents within the Organizational Routine

The perception and management of the information within the organizational routine have a crucial impact on how the decision-making process unfolds. den Nieuwenboer, Cunha, & Treviño (2017) find that actors, who are external to the routine performance, alter the organizational routine, translating the information relative to it. Bapuji et al., (2012) attribute the role of the translator of possible choices to enact to the artefacts involved in the organizational routine performance. Our model unveils how agents who perform the routine may also become the source and translator of information relative to the organizational routine even without being directly influenced by what happens in the external environment (Howard-Grenville, 2005) or by material agency (D'Adderio, 2008, 2011).

Previous studies suggest that agents' role in the organization affects the impact that their actions have in the organizational routine performance, driving change and persistence (Howard-Grenville, 2005; Safavi & Omidvar, 2016). The analysis of decision making in organizational routines suggests that the agents' role in the organizational routines is relevant

too. According to how agents are positioned in the phases of the routine, the effects of a potential change may reduce or amplify. An agent with high subjectivity has more probability of understanding the reasons for a deviation from the expected action, and so of accepting the change and working on it. An agent with lower subjectivity is more likely to stick to the usually performed action. The probability of finding a way to handle a never performed yet action is reduced, and a change can be interrupted. Overall, the effect of a higher subjectivity is to expand the routine only when doing so increases the number of compliant available actions and to adjust deviations. Creating sequences of agents with higher subjectivity may reduce the occurrences in which actions are outside the set of performed actions, but with lower frequency may generate a sequence of expansions within the compliant area of the set of possible actions never performed yet.

The rationality that drives the design of an organizational routine should take into account every single actor (Pentland & Feldman, 2008). How every agent is positioned relative to the others is relevant to understanding how the distribution of agents' subjectivity may shape the forces that trigger variation in organizational routines. Awareness of the effects of positioning can support management in driving and governing change or persistence. The reaction of organizational routines to exogenous shocks is relevant when the organization has to face those events (Christianson, Farkas, Sutcliffe, & Weick, 2008; Zollo, Reuer, & Singh, 2002). Management can govern the unfolding of the organizational routine positioning performing agents according to the desired outcome, the resistance or the adaptation of the organizational routine.

If our model highlights the importance of taking into consideration the structural position of the agent to understand the diffusion or not of a variation, we do not discuss how such a variation can be then retained (Pentland et al., 2012), to become a change in the organizational routine structure. We assume that the performed actions do not need to be

necessarily compliant with the structure of the routine. However, we do not explicit which is the threshold that allows expanding the boundaries of the set to turn a not compliant action into a compliant one. We suggest that future research could enrich the model providing more understanding on how the ostensive and performative dimensions interact (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003) using the decision-making lens.

Contributions

The contribution this paper brings to the scientific debate is threefold. Firstly, our model explores organizational routines as a complex system (Pentland & Feldman, 2005; Pentland & Rueter, 1994) that creates habitual expectations and generates unpredictability at the same time. The dual nature of such stable and changing processes can threaten their unfolding. Routines can survive through the heuristic decision making. We show that heuristics can complement and support organizational routines, instead of supplanting them (Suarez & Montes, 2019).

Secondly, our model opens the black box of organizational routines and contributes to the understanding of their internal dynamics (Feldman, Pentland, D'Adderio, & Lazaric, 2016) and micro-foundations (Felin & Foss, 2009; Winter, 2013). The model provides a conceptualization of organizational routines as emergent from the interaction between actors, embracing a relational perspective that is frequently missing in the organizational routines literature (Wright, 2016). Focusing on decision making as an individual process, we discuss how the organizational routine is the result of the constant interaction of the individual and collective dimension, given the echoes that the decision-making process generates. Individual agencies matter in determining the performance of the routine (Feldman, 2000; Feldman & Pentland, 2003) but not as independent entities. Through the analysis of the decision-making process, we discover that only considering the interaction of individual agencies and so the emergence of a collective agency the unfolding of an organizational routine can be understood.

Finally, we contribute to understanding how change can spread within the overall routine. The power that agents exercise on others has an impact on determining change or persistence (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003; Latour, 1986). However, the analysis of the process of making choice induces to reflect upon the positioning of agents. Our model uncovers that, even if agents have the same level of power, the position of agents in the routine matters in determining the potential for variation the agent may express. This contribution is relevant both for researchers and practitioners. We suggest that to understand the evolution of an organizational routine, the investigator should take in account not only the individual agency and the role of each agent but also the position that they assume in the organizational routine performance. As a managerial implication, we suggest strategizing on how agents are positioned within the organizational routine not only considering their individual ability and power but contextualizing them as among other agents who precede or follow them.

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FIGURE 1

The action sets at a phase of the organizational routine

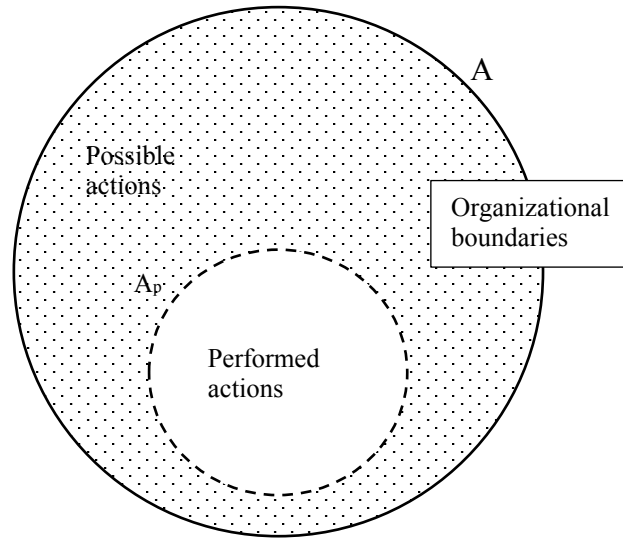
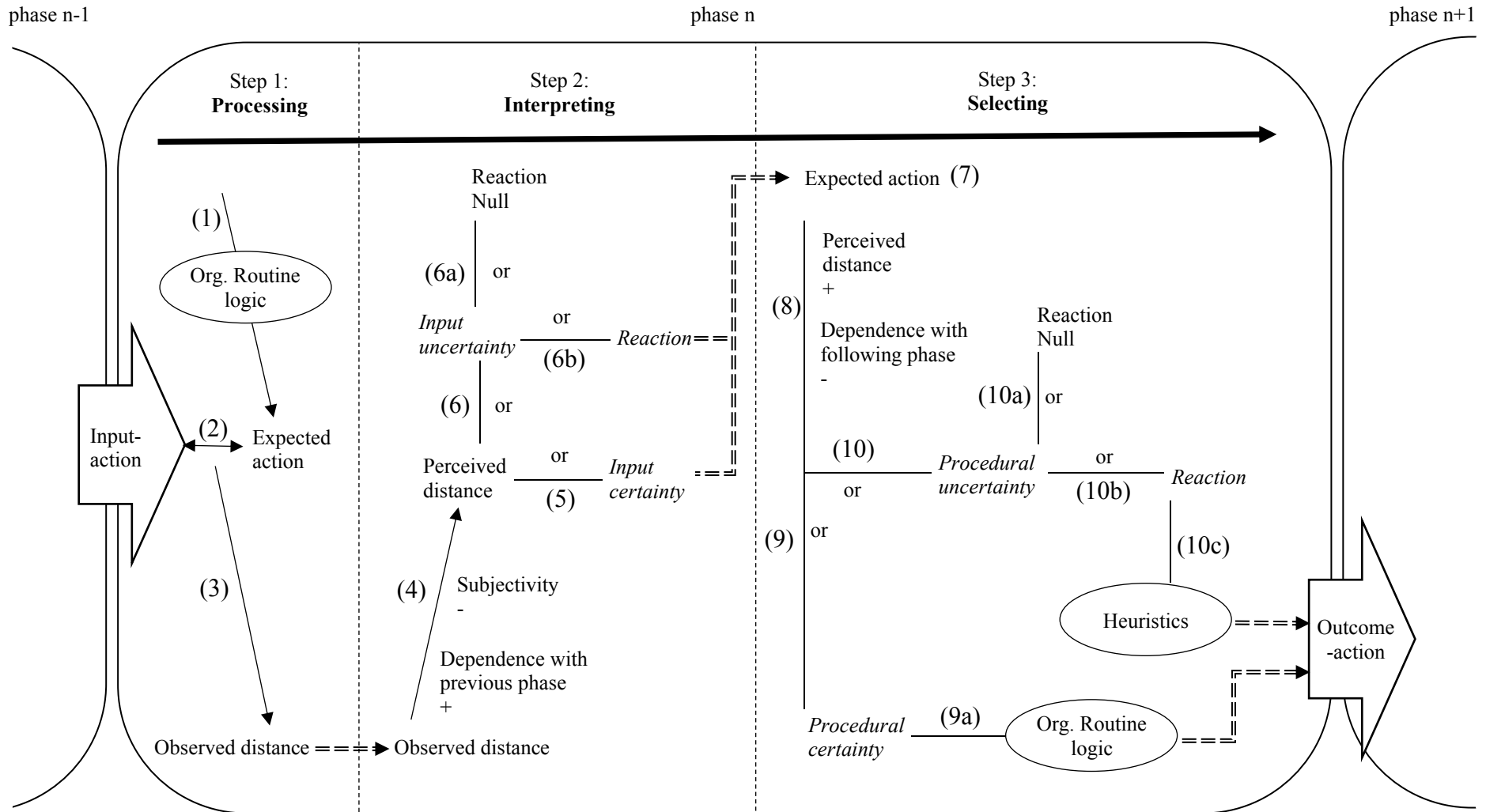


FIGURE 2
Decision making within a phase of an organizational routine



APPENDIX

Choosing in organizational routines: model formalization

Given the following elements:

- a set of agents ordered in a sequence: agent $i-1$ = agent of phase $f-1$; agent i = agent of phase f ; agent $i+1$ = agent of phase $f+1$;
- c_i = agent's subjectivity, bounded in $(0,1)$;
- A_p = set of already performed action
- a_{i-1} = action chosen by agent $i-1$;
- a_0 = the most performed action, or the modal action;
- a_1 = the least performed action in the set A_p
- $\varphi_{f-1,f}$ = structural dependence between $f-1$; $\varphi_{f,f+1}$ = structural dependence between f and $f+1$, $\varphi_{f,f+1}$. φ lies in the interval $(0,1)$, where values close to 0 indicate low dependence between phases, and values close to 1 indicate high dependence. φ takes a given and fixed value.

We can formalize the perceived distance m_i as follows

$$m_i = \begin{cases} \text{if } a_{i-1} \in A_p & (a_{i-1} - a_0) + \varphi_{f-1,f} - (c_i)^2 \\ \text{if } a_{i-1} \notin A_p & \begin{cases} (a_1) + \varphi_{f-1,f} - (c_i)^2 & \text{with prob} = c_i \\ 0 & \text{with prob} = 1 - c_i \end{cases} \end{cases}$$

We can also characterize the decision-making function as follows

$$a_i = a_0 + \lfloor m_i * (1 - \varphi_{f,f+1}) \rfloor$$

III.

Second paper. Stretching organizational routines: how experience makes them ductile

Lisa Balzarin

Francesco Zirpoli

ABSTRACT

Despite the monthly turnover of a relevant part of its employees and the key role they perform in the service offered to visitors, an art museum displays consistent – over time – service outcomes following stable organizational routines. What does support the persistence of the museum's organizational routines despite the frequent changes in the agents involved? Drawing on non-participant observations of the organizational dynamics at the museum, this paper explores the role of experience in explaining the question. Building on Pragmatism, the paper shows that experience is a dual entity constituted by the constant interaction of experience-as-stock and experience-as-flow. The processes of *deviating* from the ideal structure of the routine, *confronting* through the interaction with other peers, and *elaborating* the effect of the deviation allow agents to establish and comprehend the boundaries of the set of possible actions through which performing the routine: the organizational routine *tolerance interval*. The paper shows how experience allows an organizational routine to maintain internal variety given external and internal pressure, without changing.

Keywords: organizational routines, experience, Pragmatism, process studies, stability and change

Experience is the way through which individuals affect the context in which they are embedded and vice versa. In the organizational environment, experience triggers agents to know and learn, create and develop rules and structures, generalize on future events. Experience is improved and strengthened, especially through those processes that being recurrent allow dealing with a similar space of action repetitively. One of these is organizational routines or recurrent patterns of interaction (Feldman & Pentland, 2003; Nelson & Winter, 1982). The experience produced and collected in previous performances of the routine constitutes the experience that is applied to enact future performances (Rockart & Wilson, 2019). Experience is, therefore, the input and the output of the agents' engagement (Emirbayer & Mische, 1998) in organizational routines.

The organizational routine's recurrence resides in its inner variety. The routine is a set of possible actions performed recurrently by agents (Pentland & Rueter, 1994) and its variety collects the various ways in which the routine could be performed (Pentland & Feldman, 2008). From performance to performance, agency – “the temporally construed engagement by actors of different structural environments” (Emirbayer & Mische, 1998, p. 970)- experiments different ways through which enacting it (Bucher & Langley, 2016; Feldman & Pentland, 2003; Yamauchi & Hiramoto, 2016). New possibilities of actions are formed while others are dissolved over time (Goh & Pentland, 2019). These possibilities are stored in agents' memory (Cohen & Bacdayan, 1994; Miller, Choi, & Pentland, 2014; Miller, Pentland, & Choi, 2012), that depends on the experience collected by agents during the routine performance (Miller et al., 2012). As a consequence, organizational routines inner variety comes from the experience of agents while being involved in performing the routine, or agency, and experience is thus the primary source of organizational routine inner variety.

Experience has a dual nature (Dewey, 1922, 1938, 1958) that results from the interaction of what we call experience-as-stock and experience-as-flow. Experience-as-stock

represents the familiarity that agents gain performing the routine from time to time (Turner & Fern, 2012) and that they use to perform it, affecting its unfolding (Beck & Kieser, 2003; Howard-Grenville, 2005; Pentland, Haerem, & Hillison, 2011; Turner & Fern, 2012). Experience-as-stock can be measured in terms of frequency and accumulation (Zollo, Reuer, & Singh, 2002). Experience is also processual, dynamic. Experience-as-flow has the ongoing form of experiential learning and search (Gavetti & Levinthal, 2000), and is a transaction that transforms the units involved in it (Dewey, 1922, 1938, 1958; Emirbayer, 1997), or the agents and the environment where they act. This is why the experience has not only a psychological value, but it is sociological by nature. Experience and organizational routines mutually affect each other. Dewey (1922), reflecting on individual habits – that are the individual version of organizational routines (Cohen, 2007)-, suggests that “The medium of habit filters all the material that reaches our perception and thought” (p. 32). It is possible to extend this reflection to organizational routines, that filter experience during their performance. Experience influences how organizational routines emerge and evolve (Bertels, Howard-Grenville, & Pek, 2016; Miller et al., 2012), how they are transferred and reproduced (Birnholtz, Cohen, & Hoch, 2007; Zollo et al., 2002). Most of all, the experience can provoke both stability and change to organizational routines (Pentland et al., 2011).

Despite organizational routines’ inner variety results from a dynamic property of agency – experience-, to explain it, many studies focus on routine dynamics instead of those of agency. Routines dynamics (Feldman, Pentland, D’Adderio, & Lazaric, 2016) realize through the interaction of the two dimensions of the routine: the ostensive and performative one - respectively the space of abstracting and formulating, and that one of doing and executing- (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003). The result is that the organizational routine is conceived, at the same time, unique in structure and multiple in interpretations and realizations (Feldman & Pentland, 2003). How uniqueness and multiplicity live together in an

organizational routine remains uncovered. As a consequence, the understanding of routines' inner variety is blurry. Exploring experience allows shedding light on the issue. Experience is what defines the engagement of agents in activities (Dewey, 1922, 1938, 1958). To understand how agency provokes routines' variety it is, therefore, necessary to focus on the experience. However, those few studies that explore experience in organizational routines conceive it only in its form of stock, and thus as an entity (i.e. Howard-Grenville (2005) and Zollo et al. (2002)). These studies analyse the impact of agents' experience on routines: sometimes, experience makes routines variety increase so much that routines change; other times experience makes routine variety stable so that routines persist (Pentland et al., 2011). If these are the outcomes of experience, considering its processual dimension can unveil how these outcomes are produced, and so how routines' inner variety can support stability, not only change. Nevertheless, experience as a process remains in the background and, as a consequence, also the mechanisms through which experience, agency and routines are connected. Taking in account the pragmatist perspective on experience and aiming at understanding the organizational routine inner variety that allows the routine to be stable over time, the present research focuses on agency dynamics in organizational routines and explores how the dual interaction between experience-as-stock and experience-as-flow works as the organizational routine unfolds.

We conducted non-participant observations in a museum where a monthly turnover of employees makes agents with different levels of experience cooperate to perform some organizational routines. Despite the organizational context is characterized by a dynamism that involves different organizational routines, all of them remain stable over time. Applying the pragmatist perspective in conceiving experience and in analysing data -especially using Dewey's thought (Dewey, 1922, 1938, 1958)-, we elaborate a pragmatist model of experience in organizational routines. Our findings suggest that experience-as-stock and experience-as-

flow interact in three sequential loops that result in three processes: *deviating*, *confronting*, and *elaborating*. In *deviating*, agents use and situate their experience in the context. *Confronting* implies testing the deviation with the other participants of the routine and reacting to the others' feedback. *Elaborating* is the comprehension of what happened and the tuning of experience-as-stock. Expectations are generated as well as the *tolerance interval*, or how much the routine can be stretched before breaking down. The *tolerance interval* expresses the variety of the organizational routine and its boundaries, continuously adapted through experience, are the limits beyond which the routine collapse. The *tolerance interval* is what supports the stability of the organizational routine and its variety.

We provide three main contributions. At first, we contribute to organizational routines literature, providing more understanding of how the interactions among agents through experience determines the inner variety of organizational routines (Feldman & Rafaeli, 2002). Secondly, we show how agents make their own routine structure, unveiling how, through experience, they shape the structures in which they are embedded. Finally, we uncover that the strength of the routine as a collective process relies on the fact that experimentations (Bucher & Langley, 2016) are evaluated and retained based on others' reaction to them. We reinforce thus the relevance of control, sensemaking (Feldman, 2003; Feldman & Rafaeli, 2002; Turner & Rindova, 2012) and the participation of the other agents in organizational routines unfolding.

AGENCY AND EXPERIENCE FOR THE INNER VARIETY OF ORGANIZATIONAL ROUTINES

Variety of Organizational Routines through Agency

An organizational routine is a recurrent set of possible patterns of interaction (Feldman & Pentland, 2003; Nelson & Winter, 1982; Pentland & Rueter, 1994). Its recurrence is made possible by the inner variety that constitutes an organizational routine. The inner variety of the organizational routine collects the different ways in which the routine structure can be

performed (Pentland & Rueter, 1994). The variety of an organizational routine is not the same along the routine life cycle: the set of the possible actions that belong to the routine can change during time. Through the process of patterning, new possibilities of actions are formed while others are dissolved over time (Goh & Pentland, 2019). As a result, the variety that characterizes an organizational routine in the present can be different from the one that will characterize the same routine in the future. The routine persists over time, while its internal variety can change.

Where does variety come from? The organizational routine is formed by an ostensive dimension or the space of abstracting and formulating, and a performative one or the space of doing and executing (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003). These two dimensions interact (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003) and agents act within this interaction. Their involvement is called agency. Agency is “the temporally constructed engagement by actors of different structural environments - the temporal-relational contexts of action - which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures in interactive response to the problems posed by changing historical situations.” (Emirbayer & Mische, 1998, p. 970). During the organizational routine performance, agents interact with the structure of the routine, reacting to the stimuli coming from the physical and social environment where the routine takes place (Howard-Grenville, 2005; Sele & Grand, 2016) and the artefacts involved in the routine performance (D’Adderio, 2008, 2011).

From performance to performance, agency refers to the experimentation of different ways through which enacting the routine (Bucher & Langley, 2016; Feldman & Pentland, 2003; Yamauchi & Hiramoto, 2016). In performing it, agents are active and mindful participants (Feldman, 2003; Pentland & Rueter, 1994) who put the routine in practice, situating it in the organizational context (Howard-Grenville, 2005) and adapting it to the other routine

participants (Becker, 2004; van der Steen, 2009). So doing, agents are responsible for the emergence of different shades of the organizational routine performance. Agency records and remembers these new possibilities of actions in agents' memory that becomes the means to store routines' inner variety (Argote & Miron-Spektor, 2011; Cohen & Bacdayan, 1994; Miller et al., 2014; Miller et al., 2012). Agents' memory is nurtured, shaped through and influenced by the agent's experience (Miller et al., 2012, p. 1537), that, as a consequence is the property of agency that forms and models routine's variety. In fact, during the routine performance, agency unfolds through experience. Experience is what produces variety and determines organizational routine change or persistence (Pentland et al., 2011; Turner & Fern, 2012). For example, studying the roadmapping routine, Howard-Grenville (2005) highlights the fact that to different levels of experience about the routine correspond different consequences in the use of the structure of the routine.

Agents' Experience in Organizational Routines

Experience is at the centre of the Pragmatists thought, and especially of Dewey's philosophy, where it is conceptualized as the primary origin of all human behaviour (Dewey, 1922, 1938, 1958). In Dewey, experience has a dual nature (Dewey, 1922, 1938, 1958): on one hand, experience represents what is collected by being engaged in processes, on the other, it is the process of collecting. Thus, we differentiate the two dimensions of experience as experience-as-stock and experience-as-flow, given that: "The fundamental distinction between stocks and flows may be illustrated by the 'bath-tub' metaphor: at any moment in time, the stock of water is indicated by the level of water in the tub; it is the cumulative result of flows of water into the tub" (Dierickx & Cool, 1989, p. 1506).

In the organizational routines literature, the experience is usually conceived in the form of experience-as-stock. Experience-as-stock represents the familiarity and confidence that agents gain performing the routine (Turner & Fern, 2012). Experience-as-stock refers thus to a

quantity that results from mixing the unique personal background of the individual with the organizational cultural environment where the routine takes place (Bertels et al., 2016). If on one hand, the experience-as-stock is peculiar of a single agent, on the other hand, it is construed by and through the organization, its participants (Reagans, Argote, & Brooks, 2005), and the involvement in the organizational routine.

The more the agent has the chance to contextualize and realize the routine performing it, the more considerable the stock of experience that the agent possesses and uses to enact the routine is. The ontological property of recurrence of organizational routines allows to update (Espedal, 2006), and accumulate experience-as-stock (Zollo et al., 2002), from performance to performance. Experience-as-stock is thus not a fixed quantity, but it evolves and changes during time. Experience-as-stock influences how agents approach the structure of the routine. Different bodies of experience affect the routine differently (Pentland et al., 2011; Turner & Fern, 2012). Therefore, how experience-as-stock is formed and how it develops influence the unfolding of the organizational routine.

Experience-as-flow refers to the experiential process through which experience-as-stock is constituted and shaped. Experience-as-flow is the ongoing force of experience (Emirbayer, 1997, p. 289) that “moves toward and into” (Dewey, 1938, p. 38) and it is the way through which reality is known, lived and modified (Dewey, 1922, 1938, 1958). It has the nature of a transaction (Dewey, 1922, 1938): the units involved in it, the individual and the environment, define their properties and develop while the transaction occurs (Emirbayer, 1997). The experiential process is characterized by the fact that the agent adopting it can experiment alternatives one at the time, and not simultaneously (Gavetti & Levinthal, 2000).

Experience-as-flow makes the experience-as-stock to be contextualized. Experience-as-flow allows individuals, with their bodies of experience, to get in touch and interact with the environment in which they are embedded (Dewey, 1922, 1938, 1958), and so with the

organizational environment and the other organizational agents. Experience-as-flow is what allows the experience-as-stock to be situated in reality. The experiential process implies experimenting actions that are alternative to the usual ones and undergoing the consequences that these actions produce on the context where the individual acts (Gavetti & Levinthal, 2000).

Experience- experience-as-stock and experience-as-flow- is related with individual features such as the attention (i.e. Ocasio, 2011) and the changes in the brain that are called plasticity (Posner, DiGirolamo, & Fernandez-Duque, 1997). If experience is linked with the psychological dimension of the individual, it also has a sociological nature. Experience is about and involves a constant relationship between individuals and the physical and social context in which they are embedded (Dewey, 1922, 1938, 1958). Therefore, the experience should not be reduced to a psychological feature disconnected from the environment where the agent lives. However, as Dewey's thought suggests, experience represents the bridge between the individual and the surrounding context.

Experience is situated not only in space but also in time. Experience lives in an *experiential continuum* (Dewey, 1938). The *experiential continuum* is an ongoing dynamism where past, present and future are strictly connected. Past experiences influence the present ones and those that will be (Dewey, 1938), and vice versa. For example, experience-as-stock, or the experience about the routine that has been collected in the past, affects the ability of actors to adapt and stabilize the routine in the present (Pentland et al., 2011; Turner & Fern, 2012) altering the experience that is collected in the present time.

Experience and organizational routines affect each other. On one hand, during their performance, organizational routines filter experience (Dewey, 1922), creating the boundaries and the features of the context in which experience unfolds. On the other hand, experience allows organizational routines to emerge and evolve (Bertels et al., 2016; Miller et al., 2012), to be transferred and reproduced (Birnholtz et al., 2007; Zollo et al., 2002), and most of all to

gain stability in some occasions (Beck & Kieser, 2003) and to change in other (Pentland et al., 2011).

Nevertheless, surprisingly, (1) how experience is formed and evolves to affect the routine and (2) the dual interaction between experience-as-stock and experience-as-flow that gives form to experience have not been investigated yet. The present research aims at filling this gap, exploring how experience-as-stock and experience-as-flow interact as the organizational routine unfolds.

METHOD

The present investigation is based on an ethnographic study, guided by the abductive logic (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012; Locke, Golden-Biddle, & Feldman, 2008): the research activity is characterized by a recursive back and forth from phases of data collection, literature investigation, and data analysis and it is driven by a surprising fact that emerged during observations.

Through the analysis of non-participant observations, informal conversations, interviews, and artefacts, the present research aims at elaborating on existing theory, providing insights on the process of formation and interaction of experience-as-stock and experience-as-flow during and by organizational routines.

Research Setting: A Case of Monthly Turnover

In Italy, the art museum Peggy Guggenheim Collection (PGC) offers a program of Internship to university students and young professionals from all around the world. Every month, almost 30 Interns constitute a newly formed group. Just arrived Interns -New Interns (NI)- and those who have been in the museum in the month/s before -Old Interns (OI)- cooperate to perform different routines. Usually, the turnover affects a third or almost half of the group, but the rates can be different from month to month. Despite it, organizational routines are stable. Moreover, the monthly turnover allows us to observe clearly how agents

with different levels of experience-as-stock interact with each other. We can also observe the development of experience-as-stock, through experience-as-flow, from low levels of the body of experience to high ones. The observations cover five cycles of turnover.

Selecting a routine. Among the set of organizational routines that Interns have to perform, we select a particular one, rotation. Rotation is the hourly change of the agents involved in the activity of guarding the galleries of the museum. It happens six times per day, for a total of 36 rotations per week. To be performed rotation does not require complex knowledge or a particular background, but specific knowledge: a general understanding of the physical context where it takes place, the routine structure, some rules and the role of the other agents performing it. The necessary experience-as-stock to perform rotation is acquired within the museum and from performance to performance given that agents do not need previous specific capabilities or background knowledge to perform it.

Rotation works as follow. An intern, called the *Rotation Float* starts the rotation: *Rotation Float* approaches the person in charge of guarding the area of the museum R1 and says on the walkie talkie that the rotation is started. The person who has guarded R1 in the previous hour goes in the following room (R2) and so on until the last person in the last area of the museum goes in the room where the rotation started and where the *Rotation Float* is (R1). At that point, the *Rotation Float* closes the rotation saying, by walkie talkie, that the rotation is over, and leaving the room. In between shifts and according to the area where they are, agents could have to pass the walkie-talkie or other tools that are necessary for guarding. The routine is defined by some rules: not going to the restroom, not having a break or chat during rotation, never leave the position before the substitution with another agent.

Agents directly and indirectly involved in rotation are organized in a hierarchy as represented in Figure 1. The Interns' top management is the Education Department of the museum. During the period of observation, the Education Department staff has never

participated actively in the rotation. Two Interns' Coordinators (IC), or former Interns of the museum whose mandate is half-yearly, coordinate Interns. Every month, two Interns' Coordinators Assistants (AC) support the activity of Interns' Coordinators, managing practical issues related to Interns' work. AC are Interns with at least one month of experience in the museum. AC's mandate ends with the last day of their Internship period. AC and IC are involved in rotation sporadically, for example, just in case of substitution or a problem to be fixed. Interns are regularly involved in performing rotation. For them, the Internship Program lasts from 1 month to a maximum of 4 months - most of the Interns stay in the museum for 2 or 3 months. Given the short duration of the Internship, there is a high level of monthly turnover. Interns can be distinguished in two main groups: New Interns (NI) – or Interns who are new in the museum -, and Old Interns (OI) – or Interns who have at least one month of experience in the museum. With them, Agents in Outsourcing (AO) are daily involved in rotation performance. Agents in Outsourcing are directly managed by a cooperative, external to the museum. Some of them have been working in the museum for many years, some have been recently added to the group. Agents in Outsourcing are hired to guard the galleries of the museum, and they do not have to fulfil any other duties.

Insert Figure 1 about here

The rotation takes place in the museum galleries. The phases of rotation are defined and based on a partition of the museum galleries. To organize guarding activity, the museum is divided into different areas. Each of them is guarded by an agent. The number and the extension of the areas in which the museum is divided for the guarding activity can vary. This depends on the presence or not of temporary exhibitions in the museum. The context of rotation can therefore differ. However, the tasks agents have to perform remain the same.

Data Collection

The research is based on an ethnographic study (Van Maanen, 1979, 2011), focused on “understanding human experience” (Cunliffe, 2010, p. 227). We use non-participant observations, informal conversations, interviews, and artefacts that have been collected by one of the authors, overtly. The other author has been involved in the phase of data analysis. The researcher in charge of collecting data was already familiar with the organization, given a previous experience as an intern many years ago. On one hand, the temporal distance between the direct involvement in the organization and the research activity allows for the necessary detachment from the context of investigation (Ybema & Kamsteeg, 2009). On the other hand, the familiarity with the physical context and the specific language allows for faster integration of the researcher in the organization and facilitates the process of generating insights from the data (Anteby, 2013).

Non-participant observations. The organizational routine of rotation has been observed 244 times, during a period of four months and half of non-participant observations. The researcher has also observed training, meetings, social events and has been involved in, or has observed, several informal and extemporaneous conversations whose topic is rotation. Field notes have been collected in a notebook, transcribed in a digital form, and eventually shared with the second author. The hours of observations and the observed activities have been reported in a document that the researcher filled daily. The period of observation has been divided into two phases, with a temporal gap of more than two months between the first and the second phase. According to the abductive logic, there has been a constant back and forth from fieldwork and theoretical investigation.

Semi-structured interviews. 37 semi-structured interviews (23 for Interns, 9 for Interns’ Coordinators Assistants, 3 for Interns’ Coordinators, 2 for Education Department staff) have been conducted at the end of the period of observations, to support observations. Three

main rationalities drive the decision of postponing interviews. The interview starts with an explanation of the research. The questions make the interviewee reflecting on the activities and organizational routines they perform in the museum, and more in particular on the routine of rotation. Interviewing Interns, during their Internship period, could have therefore affected their performance. Secondly, Interns of different cycles are in contact with each other: some of them remain in the Program with other roles, others remain in the city and still hang out with the museum's Interns. Interviewing Interns at the end of their Internship period instead of at the end of the observation period could have increased the chance for them of exchanging reflections on the research we conduct and on the questions of the interview, with the result of affecting those Interns who are still part of the observations. Finally, the observations are a moment of discovery: observing how things work, the researcher can better understand what is interesting in the case and which are the theoretical gaps that the investigation can fill. Therefore, only after a consistent part of the observation period, it is possible to reflect on the surprising fact discovered during observation (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012), and to design an efficient canvas for the interviews. Given that interviews have been conducted at the end of the period of observation, the possibility of agents' loss of memory on how things have been done in the museum increases. Punctual questions are used to stimulate memory and overcome this possible limitation.

Two types of agents have been interviewed: Interns -IC, AC, Interns - and Education Department staff. According to this classification, two different main tracks of questions have been prepared (Appendix A, Appendix B). During the period of observation, the researcher anticipates to Interns the plan to conduct interviews to better understand the museum dynamics and Interns' point of view. At the end of the period of observation, the researcher contacts the Interns asking their availability for an interview. Given that the major part of the Interns is

international, the major part of the interviews is conducted by technological tools. All the interviews have been recorded and transcribed.

Artefacts. During the period of observation, several artefacts are collected. Interns' working day is supported by different material objects, such as manuals, slides used for training, daily schedules, emails, maps of the museum – maps change according to the rearrangement of the spaces, given the presence or not of temporary exhibitions- the monthly list of Interns, the monthly list of art talks.

Data Analysis

The processual nature of collected data (Langley, Smallman, Tsoukas, & Van de Ven, 2013) makes them complex to manipulate for the analysis (Langley, 1999). Data analysis develops through different steps that do not follow necessarily a sequential order. A constant back and forth from one step to another also characterizes the data analysis process. Coding was carried out in three sequential steps: first, we reformulate collected data, summarizing in simple words the main take away; second, we let emerge categories merging our interpretation with the categories that literature suggests; third, we identify aggregate dimensions (see Gioia, Corley, & Hamilton (2012) for an illustration and justification of the procedure).

How rotation should be. Rules and a specific procedure regulate the rotation. We reconstruct the ideal structure of rotation based on the observations of how the organizational routine is explained to new agents – New Interns and new Agents in Outsourcing-, interviews, and the artefacts that support the passing on of the routine (e.g. maps of the museum, and the Interns' manual where the routine of rotation is explained). We identify thus the main phases and tasks as well as the rules that regulate the sequential unfolding of the routine. Since the rotation is strictly dependent on the physical context in which it is set, we register some changes in the extension of the routine given the temporary exhibitions that add or remove some areas

of the museum where the rotation takes place. Nevertheless, the tasks and the rules of rotation remain unchanged.

How rotation actually is. We analyse 244 observations of the routine performance. During rotation performance, some deviations -from how the rotation should be- emerge. Deviations represent the difference in how the routine should be and how it actually is (Becker & Zirpoli, 2008). Three categories of deviation are identified (Table 1). *Deviations of mistake* are those provoked by accident and are said to be caused by the confusion or misunderstanding of agents. *Deviations of response* are those enacted as the consequences of other deviations to keep the routine on track as much as possible. Finally, *deviations of deliberation* are those that are voluntarily produced by individuals who know that they are deviating from the ideal structure of the routine.

Comparing deviations for every cycle of turnover: patterning. How are the different types of deviation distributed in the month? During data collection, we observed that the unfolding of the different types of deviation looked similar for each cycle of turnover. The analysis of interviews confirms our interpretation. We analyse the unfolding of the three categories of deviation for each cycle of turnover, and we compare them for each month. We find out a match with what emerges from observations, interviews and the interpretation developed during the fieldwork. During each cycle, a similar development of patterning emerges, where patterning is the creation of new paths and the dissolution of old paths (Goh & Pentland, 2019).

Coding the emerging concept of experience. To explain how rotation unfolds and its patterning, interviewees refer to the concept of experience spontaneously and associate to it a relevant role for the organizational routine. Therefore, we code how experience is interpreted by the agents relative to the rotation routine, to justify the relevance of exploring it for understanding how organizational routines work. Table 2 shows that agents let emerge as

fundamental the features that the organizational routine literature and the Pragmatist thought identify as characterizing experience.

Analysing deviations according to the level of experience-as-stock. To each deviation, we associate the agents involved in it - New Interns (NI), Old Interns (OI), Interns' Coordinator/s (IC), Interns' Coordinators Assistants (AC), Agents in Outsourcing (AO). Each category of agents is characterized by a different body of experience - in presenting findings, we use the term body of experience to refer to experience-as-stock-. New Interns (NI) are inexperienced agents, the rest of individuals (OI, IC, AC, AO) have collected experience about rotation, so they have a consistent body of experience in the moment of the observation. We find that to different deviations correspond mainly some specific levels of agents' experience-as-stock (Figure 2, (1)).

Coding the unfolding of the interaction of experience-as-stock and experience-as-flow, during and after the routine performance. We analyse data conceiving experience a duality, as conceptualized by the Pragmatists perspective. In the previous step of the analysis, we identify that experience-as-stock is linked with deviating. In this phase, we look for a link between experience-as-flow and the deviating behaviour (Figure 2, (2)). Experience-as-flow is what allows the deviating being situated in practical action and a specific context. The coding shows that this is possible only through the push coming from experience-as-stock. As a consequence, deviating is the result of the dual interaction of experience-as-stock and experience-as-flow. We look for the mechanisms of interaction of experience-as-stock and experience-as-flow (Figure 2, (3)). Table 3 presents the resulting coding.

Insert Figure 2 about here

Insert Table 1 about here

Insert Table 2 about here

Insert Table 3 about here

EXPERIENCE-AS-STOCK AND EXPERIENCE-AS-FLOW IN ROTATION

ROUTINE

Agents' Body of Experience

Agents approach every routine performance according to their experience-as-stock, or their body of experience. At the beginning of every month, New Interns perform rotation without having any first-hand experience relative to it. This is why New Interns are trained about rotation. Nevertheless,

“first time doing it (rotation) was a bit more ‘what?’, and the more often you did it, the better you got, because it was like ‘ok, now I know what time, how to do it’, so in the process, I learnt a lot in the process, doing it and repeating doing it.”(from an interview with an Intern)

This is what matters in rotation: the first-hand experience collected performing the routine. Experienced agents approach rotation with more confidence, having performed it a discrete amount of times. The body of experience necessary to perform rotation is collected within the museum. The individual's background and personal abilities are not so relevant: the triviality of the routine does not require complex knowledge or advanced capabilities to be

possessed. Only by practising it agents can capture how rotation works because *“rotation let’s say it is the most confusing part of the daily tasks”* (from an interview with an Intern).

Every agent performs the rotation in different positions, time and spaces. The body of experience they collect is, therefore, personal and unique. While performing rotation routine, agents can assume two different roles: the first one is that one of the agents in charge of starting and closing the rotation, and the other is relative to agents in charge of actually rotating from a room to another. While Interns perform both of them, Agents in Outsourcing do not. *“There are two different points of view, I suppose”*, an Intern says: the overview on the routine differs and so how it is experienced.

Uniqueness is strictly connected with the features of the temporal and spatial context where the routine takes place, too. The context is never the same twice, like a river. Therefore, the experience that the agent collects in a specific time and space cannot be the same for the other agents. Moreover, every performance of the routine is the same but is also different, as an Agent in Outsourcing confesses during a spot chat. Depending on which performance of the routine the agents participate in, their experience differs and takes new shades. Every rotation performance represents the chance to collect experience about rotation, so that, depending on what happens while enacting the routine, the agents’ body of experience before performing is different from that one at the end of the performance.

The Relation Between Different Bodies of Experience and Environmental Conditions Results in Different Types of Deviating

The rotation is not always performed compliantly with the ideal structure of the routine: a variety of performances occurs given the inclination of agents to deviate from how the organizational routine should be. On one hand, the inexperience of New Interns triggers deviations: *“in the first week of New Interns there are always little mistakes”*, an Intern recognizes. On the other hand, deviations are activated given the deep experience of some

agents: *“because of their experience...they (Agents in Outsourcing) just don’t feel this need to do everything correctly like being strict to the rules”* (from an interview with an Intern).

For the museum’s Interns, the beginning of the month is the liveliest period of their Internship. The inexperience of newcomers produces lots of noise in how rotation is performed. Only by situating rotation in practice agents understand how it works. Before, it is only an abstract idea so that mistakes occur:

“A thing is reading the instruction of how to change the car oil. A thing is having to do it, maybe you know the theory word by word, but you have to push the gear in that direction and...you know...” (from an interview with an Intern)

For inexperienced agents, the first element of confusion is the museum space. When the temporary exhibition is open, the exposition rooms of the museum cover two different and physically separate buildings. Every building is divided into areas, and each area covers one or more rooms. Rotation follows a specific order, that needs to be respected to make all the agents rotate. New Interns are told about this partitioning and order. However, once in the performing process, they are usually confused by the space where the rotation takes place. New Interns usually mistake the room where they have to go, reinterpreting the space according to what they remember from the training, and what makes sense for them:

“I didn’t understand the plan of the building, and I didn’t have a sense of that. It was my first day... once we started rotation... I wasn’t sure... I knew R1, I was very confused with R3 and 4...” (from an interview with an Intern)

The rhythm of rotation generates some doubts and misunderstanding too. New Interns can be confused by some delay provoked by other agents. Thinking that too much time has passed, they do rotation without waiting for the agent from the previous room coming to rotate.

For New Interns, another common mistake is forgetting to start rotation. The first week – or ten days- of the month, every New Intern has to fulfil the role of Rotation Float for the first time. Rotation Float is the person in charge of starting and ending rotation and who makes the temporal schedule of the routine to be respected. Despite rotation hours are written in the daily schedule that every Intern has, some of them, usually the new ones, forget to go to R1 to initiate rotation. More in particular, one of the daily rotations is scheduled ten minutes before the lunch break time of the Rotation Float and inexperienced agents usually forgot that rotation.

Experienced agents – Old Interns and Agents in Outsourcing - are not immune to making mistakes. The overconfidence in performing the routine induces these agents to be distracted in how they perform rotation. This happens when, for example, agents forget to pass on the walkie talkie before going to the following room. Mistakes are not the only deviations coming from them. The deep experience that they have makes them aware of the fact that it is possible to intentionally deviate from the ideal structure of the routine in some circumstances: *“I think that sometimes people take advantage to that (rotation)”* an Intern confirms. Experienced agents put in practice their experience leveraging the structure of the routine, or taking advantage of the corner of actions that it hides:

“they kind of just found loopholes within the system and how to... kind of not... I wouldn't say 'not work' because it is still working. They have a break here, and there and they just found loopholes. Because they work there longer.” (from an interview with an Intern)

For example, even though it is forbidden to exploit rotation to have a break or to go to the restroom, experienced agents are used to doing it because it is the best moment where every room is guarded by a person:

“sometimes Agents in Outsourcing go to the bathroom, so once the person replaces them in that room, instead of going in the next room they would go to the bathroom, and maybe they would grab something” (from an interview with an Intern)

“you couldn’t go to the restroom, but it is the best way because there is a person that can substitute you” (from an interview with an Intern)

Exploiting rotation to have a break is an individualistic act but exploiting it to have a chat with other peers implies involving the others in the deviation. Guarding is perceived as boring and rotation is exploited to interrupt that activity. The personal need of having a break prevails on being compliant with the ideal structure of the routine:

“me too, after an hour of silence because visitors didn’t ask anything, I like to chat a bit with the guard of the following room. Maybe the guard is a funny Intern or a funny Agent in Outsourcing...” (from an interview with an Intern)

Deviating in performing a phase not only compromises the efficiency of that phase, but it also affects the following phases. *“Rotation is like a production line”* (from an interview with an Intern), and, therefore, there is a *“domino effect”* in it (from an interview with an Intern). The deviation performed by the previous agent can sometimes influence how the following agents perform their tasks. The following agents can recognize the deviation

performed by the previous agents and need to fix it before going on with the normal course of rotation, as in the case of Vignette n.1.

Vignette n. 1: “Go back, you are in the wrong room!”

It is the beginning of the month. It is rotation time. The guard coming from R1 arrives in R2, and the New Intern of R2 leaves the room. The New Intern goes in R4 instead of R3. The guarding agent in R4, an Old Intern, recognizes the New Intern and understands that the New Intern is in the wrong room. Given the recognition of the mistake, the Old Intern cannot go on with the rotation, otherwise, the Old Intern knows that a room will not rotate. The Old Intern says to the New Intern that she/he is in the wrong area of the museum and explains her/him how to reach R3.

Vignette n.1 illustrates that the Old Intern, having enough experience to be able to recognize the mistake, restores the correct unfolding of the routine instead of performing their task immediately. The Old Intern deviates from the ideal structure of the routine as a response to the deviation of the New Intern. The result of the Old Intern’s deviation is that the routine reaches the aim of making the agents in all the areas of the museum rotate. The deviation has preserved the outcome of the routine.

The deep experience of Old Interns and Agents in Outsourcing shows up also in other occasions. New Interns can be confused about how to guard the room in which they arrived through rotation, and they can ask the following agent insights on how to correctly perform the activity. The agents, thus, instead of executing their phase of the routine correctly, take time, breaking the rule of not chatting, to support another activity in the museum.

If the inexperience and the mistakes of performing agents affect the others in performing the routine, also who do not participate in the routine can alter its unfolding.

Visitors perturb agents in performing rotation. Agents performing rotation are the guards of the museum. As guards, they are in charge of answering visitors' questions, that can be also asked when guards are required to perform the routine. It is up to the agent how to deal with the situation that pushes them in deviating from the ideal structure of the routine:

“sometimes even visitors I think would stop you to ask you a question, which happens as you walk to rotate but that would put like you'll come and drug out because rotation is supposed to happen in 15 minutes or something” (from an interview with an Intern)

Once, an Agent in Outsourcing, with several years of experience of rotation, dealt the situation explaining to the visitor that the museum guards have to rotate at a precise time during the day. The Agent in Outsourcing explained that it was rotation time and invited the visitor to follow her/him in rotation to continue to answer visitors' question about the museum collection.

In sum, deviating mirrors and comes from the agent's stock of experience, and it is realized by experience-as-flow that situates it in the context and put it in practice. The context that characterizes the performance of rotation can present some circumstances that challenge the agents' body of experience.

Testing the Deviation and Having a Reaction About the Feedback: Confronting

While an agent is deviating or once the agent has deviated, the deviation is noticed by other participants to the routine, and it can affect them. For example,

“if somebody has to do Rotation Float and he/she forgets to do rotation that's a problem for the whole museum.” (from an interview with an Intern)

The act of deviating is immediately confronted with the other participants of the routine who can signal their approval or not in different ways.

During rotation, agents chat despite this is against the rules. Chatting involves at least two agents, who can be both other guards as well as some Interns' Coordinators Assistants checking the rotation or substituting some guards. The participation of more than an agent in deviation is implicitly a form of collective acceptance of it. Agents manifest their tolerance relative to the act of deviation implicitly.

Other times, the deviation can be explicitly approved, such as represented in Vignette n. 2.

Vignette n. 2: "Can I do it?" "Of course!"

The New Intern guarding the last room in the museum goes in the first room (R1). There, an Old Intern – the Rotation Float- is waiting for the New Intern to close the rotation. Once the New Intern arrives, the New Intern asks the old one if it is possible to go to the bathroom. The Old Intern replies that the New Intern can do it. The New Intern goes to the restroom, and the time of rotation is extended.

However, a deviation is not always accepted. For example, as in the case of Vignette n.1, a New Intern, being confused by the context, mistakes the room where to go. The mistake is corrected by the following agent who realizes the mistake and instead of going on with rotation, explains the mistake to the New Intern and how to fix it. The deviation does not pass the "test" so that another performing agent explains how to fix it to the agent who made the deviation. The latter reacts according to their body of experience. In the case of Vignette n. 1, the New Intern understands how to repair the deviation. The deviation is not tolerated by the peer who refuses it, gives negative feedback, and asks to repair the deviation.

Sometimes, the failure of the test is expressed by the intervention of external agents to repair the deviation. For example, as described in Vignette n. 3, the Interns' Coordinator can step in to restore rotation correct unfolding.

Vignette n. 3: Forgetting to start rotation

Today is the second day of the month. For the morning shift, the Rotation Float is a New Intern, who is in charge of this role for the first time. It is 12.45 pm. At 12.50 pm, there should be the last rotation of the morning shift. After it, the Rotation Float has the lunch break. At 12.55 pm, the rotation has still to start. It is 1.00 pm, the Rotation Float passes through R1, the room where the rotation should start, with other Interns and goes out from the main door of the museum, leaving the building. It is 1.30 pm when the rotation starts: one of the Interns' Coordinators arrives in R1 and starts rotation. One minute later, the New Intern who should have started the rotation passes again from R1. The Interns' Coordinator stops the New Intern and explains that she/he has missed the rotation. The Interns' Coordinator suggests being more careful next time.

The non-acceptance can come not only from the others but also from the agents themselves who made the deviation. Given their body of experience, they autonomously react to the deviation they have made, and they do not tolerate it because they recognize that it disrupts too much rotation:

"I was always confused. Once, I made the rotation skipping one room. I went to R4 instead of R3. I confused the rooms for a month. I had to say to an Old Intern: 'we have to switch because I am at your place and you are in mine because I'm a bit silly'" (from an interview with an Intern)

In sum, experience-as-flow allows for direct interaction with other agents who act in the context where the organizational routine takes place. This interaction makes the deviation, and so the experience-as-stock, to be tested as experience-as-flow unfolds. Depending on their experience-as-stock, agents can differently react to the feedback resulting from the test, for example, fixing the deviation or asking more questions about it.

Moderating and Fine-Tuning What Happened: Elaborating

Agents elaborate on what just happened. The feedback that agents receive from the test provokes some emotional reaction and rational judgment. The elaboration depends on agents' experience-as-stock that is exploited to comprehend the causes of their feeling and their actions during the process of deviating and confronting:

“I felt even bad because an Agent in Outsourcing could talk to me like for several minutes and, in my head, I was thinking that ‘Ok but we are doing rotation right now, don’t you go to the next room?’. It was not because I didn’t want to talk, but because I felt bad” (interview with an Intern)

Agents rationally think about the effects of deviation, basing their reflection on what they have experienced in the past. For example, Interns know that extending the time of rotation has some consequences:

“you should go as fast as you can in the following room because there is a person waiting (the Rotation Float)” (interview with an Intern)

During rotation, Interns can be the guards who rotate or can fulfil the role of Rotation Float. Therefore, they know that rotation is only one of the duties that the Rotation Float is in charge of. The anxiety and pressure experienced while waiting for the end of the rotation are recalled by Interns to make sense of their actions, reactions, and judgements while they are rotating.

Thanks to their body of experience and what just happened, agents understand how much they are allowed to deviate from the ideal structure of rotation. If the experience makes agents in front of negative feedback, then the extension of how much they can deviate in those specific circumstances is reduced:

“if we do that, if we like suck rotation to go to the bathroom and our boss sees us, they say: ‘You know you’re not supposed to do that. If you want to go to the bathroom, there is a better way to handle it.’” (from an interview with an Intern)

“once you make them (mistakes), you learn from them. That girl who went on a break I’m sure she never messed up the rotation again.” (from an interview with an Intern)

On the other hand, agents can increase their level of tolerance relative to how much they can deviate. An Interns’ Coordinator recognizes that with the gaining of experience there is a change in the understanding of how much the routine can be stretched: *“We always noticed with every group that at the end of the month..., they used to get used to bad habits”*. For example, if it is quick, chatting is not altering too much the overall flow of the routine, and so once they understand this, agents deviate more frequently: *“you have two seconds to say something, you don’t do it on straight time”*, an Intern says.

The collected experience makes agents understand which the boundaries of action are during rotation. On the other hand, experience makes agents elaborating predictions on how

the future performances of rotation could be. For example, they develop an understanding of the flow of rotation during the overall cycle of turnover.

“the first week the problem is that people do not always know what to do and this is why mistakes happen, and then maybe in the last week people know too well what they have to do... they don’t take it too seriously or you know, they don’t stick too much to the rules because they know that nothing would happen if they quickly go to the toilet or grab their bottle of water or whatever” (From an interview with an Intern)

According to this expectation based on their experience, agents shape their behaviour. For example, some Interns’ Coordinators Assistants know that during the first days of the month New Interns can be confused, so they follow rotation in that period. They give immediate feedback to New Interns who are making a mistake. They expect, for example, that New Interns mistake the room where to go at the beginning of the month, or that if at the end of the month rotation lasts more than 10 minutes it is because some guards stop chatting. Expectations are mirrored in agents’ action and approach to the rotation. Agents recall what they have experienced. They make connections with what happened during past performances, and they connect causes and effects.

The power of expectations also expresses in the act of deviating to support the rotation itself or guarding activity when an experienced agent interacts with an unexperienced one during rotation. Experienced agents were inexperienced once, and so they exploit the interaction that the rotation creates to fulfil the gaps that New Interns have (Vignette n. 4).

Vignette n. 4: “Do you know how to guard this room?”

It is the second day of the month, the first rotation of the working day. A New Intern is in charge of being Rotation Float. The New Intern has to perform rotation for the first time. The New Intern goes in R1, where an Agent in Outsourcing is guarding the room. Before leaving the room to go in R2, the Agent in Outsourcing explains to the New Intern how to guard R1 until the last guard arrives and the New Intern can close the rotation.

In sum, after deviating and confronting, agents elaborate on what just happened. Experience-as-stock moderates how agents make sense of the consequences of their actions, and so it moderates the just occurred experience-as-flow. In turn, experience-as-flow fine-tunes experience-as-stock. The resulting outcomes are an updating of how much the routine can be stretched and of the expectations for future performances.

A MODEL OF EXPERIENCE DURING AND FOR ORGANIZATIONAL ROUTINES

Our findings are represented by the model in Figure 3 that shows how the duality of experience unfolds during and after the organizational routine performance and how this unfolding affects future performances of the routine.

Insert Figure 3 about here

Every agent has their own experience that is constituted by the two dimensions of experience-as-stock and experience-as-flow (Figure 3). The experience-as-stock represents the agent's body of experience, or their background, their past experiences in performing the routine and other organizational activities. Experience-as-stock contains, therefore, the seed of the ostensive dimension and of the structure of the routine, that is collected from first and second-hand experience. However, experience-as-stock is more than the ostensive dimension and the structure of the routine. It is the network of the understandings, believes, emotions that

every single agent has collected during the routine performance. This is why, even if it can have some common traits among the performing agents, experience-as-stock is unique for every single participant. The complementary part of experience-as-stock is experience-as-flow.

Experience-as-flow is the processual dynamic dimension, through which experience-as-stock develops. Experience-as-flow represents the constant relation of the agents with the environment in which they are embedded. Experience-as-flow makes experience-as-stock to be situated in space and time: the conditions in which the interaction happens are unrepeatably.

Our model focuses on exploring how the duality between experience-as-stock and experience-as-flow happens when agents involved in the performance of the routine deviate from its ideal structure. We identify three main processes through which experience-as-stock and experience-as-flow interact to produce a new experience that will be used in the future performance of the routine: deviating, confronting, and elaborating (the central body of Figure 3). These processes are sequential, but the end of the previous overlaps with the beginning of the following. Each process is realized through a loop of mechanisms that connects experience-as-stock and experience-as-flow. In the following sections, we explain each process and the relative loop of mechanisms as well as the outcome of this unfolding.

Deviating Through the Loop of Activating and Realizing

When involved in the performance of an organizational routine, agents enact their task according to their experience-as-stock. Given that, agents can imagine several possible ways through which their phase in the routine can be enacted. Experience-as-stock can push agents in performing actions that are not compliant with the ideal structure of the routine. Experience-as-stock affects experience-as-flow, providing the action to be performed. *Activating* is the way through which experience-as-stock exercises its influence and is mirrored in experience-as-flow (Figure 3). Experience-as-flow puts in practice, and, therefore, in the context, the action

that experience-as-stock has activated. We call this mechanism *realizing*. The interaction between activating and realizing results in *deviating* (first loop in Figure 3).

Activating is about choosing how to face the situation, i.e. how the routine should be enacted. It is a re-elaboration of the content of experience. Our data shows that extremely low or high levels of experience-as-stock can induce agents in experimenting new possibilities of actions. For example, deep experience-as-stock can inject overconfidence. Agents activate their experience-as-stock through mindless engaging. On the other hand, scarce experience-as-stock can orient agent in facing the routine and its context inappropriately and by mistake. Activating implies the re-negotiation of the hierarchy of priorities considered in performing the routine. For example, high levels of experience-as-stock can make agents to privileged personal interests instead of routine efficiency. From a correct performance, experience-as-stock can activate a performance oriented in enacting the routine exploiting the corners of action that it hides. Agents thus reconfigure the pyramid of priorities putting first the personal interest instead of the rigorous compliance with the ideal structure of the routine. The *activating* assumes the shape of identifying strategies of exploitation of the structure of the routine.

Realizing makes the context where the routine is performed influential relative to how the routine is performed. In other words, *realizing* is contextualizing and modelling experience-as-stock according to the characteristics that define the spatial and temporal context where the performance occurs, where experience-as-stock is confronted with the context in which it takes place. Through *realizing*, agents can be forced to deal with unusual situations and assume responsibility relative to the unfolding of the routine. For example, if the previous participants altered the structure of the routine, the context where the following one acts can be different from what is ideal or expected. Through experience-as-flow, the agent captures the features of the environment and shapes the action coming from the experience-as-stock according to them.

Confronting Through the Loop of Testing and Reacting

The deviation is usually visible to the other routine's participants. Organizational routines are collective processes that unfold through the interconnections among agents. Experience-as-flow makes the deviation to be seen and recognized by the collectivity of agents involved in the routine. Sooner or later, routine's participants get in touch with the consequences of the deviation and express a judgment on it. We call this mechanism *testing* (Figure 3). Once the others, directly or indirectly, signal how they perceive the deviation, the agent who has deviated reacts to the result of the test. The reaction depends on the agent's experience-as-stock. We call this mechanism *reacting* (Figure 3). The interaction among the two mechanisms generates the process of *confronting* (second loop in Figure 3).

Experience-as-flow makes the deviation to be challenged by the other participants. Agents can compare their action with beliefs, experience, and expectations of the others and assimilate the experience-as-flow according to their experience-as-stock. The more the intensity of the interconnections among agents, the more the opportunities the deviation has to be tested. In this way, agents who deviated have the chance to question their body of experience in a twofold sense. At first, *testing* results in a reaction of the others. Secondly, the result of *testing* is assimilated by the experience-as-stock of the agent who made the deviation and produces a reaction. The deviation can be tested reflexively also by the agent who made the deviation. In this case, the agent abstracts themselves from the action and question what they have done.

Experience-as-flow can confirm the experience-as-stock, signalling an explicitly or implicitly toleration. However, the deviation can be refused: the other participants can show rejection of the deviation in different ways. In case of non-acceptance, agents' deviation can be fixed by others or be asked to be fixed by the agent who very made the deviation.

The experience-as-stock of the agent who made the deviation provides a reaction to *testing*. The agent adopts their body of experience to face the tolerance or the rejection, and to

react to it. *Reacting* can result in a modification of the deviation, that happens according to and shaped by the agent's experience-as-stock.

Elaborating Through the Loop of Moderating and Tuning

Testing experience-as-stock and *reacting* to feedback push agents in another loop that realizes in the process of *elaborating* (third loop in Figure 3). *Elaborating* emerges by the fact that experience-as-stock does not only produce a practical reaction on the received feedback but also moderates what happened as a whole. We call this mechanism *moderating* (Figure 3). On the other hand, experience-as-flow shapes, adjusts, and modifies experience-as-stock, through the mechanisms of *tuning* (Figure 3). The resulting process, *elaborating*, is the most individualistic part of the unfolding of experience in organizational routines.

According to how experience-as-flow and experience-as-stock have interacted, every agent rationalizes what happened until then. *Moderating* happens as processing the *confronting*. Agents use their experience-as-stock to associate values to the other feedback and their reaction to them. *Moderating* is also facing the consequences of *deviating*. In this mechanism, agents provide justifications and explanations. To do so, agents recall their experience in performing the routine, using how experience-as-stock and experience-as-flow have interacted in the past, to make sense of the present.

Experience-as-flow helps agents in *tuning* their experience-as-stock or refreshing their experience, through capturing the features of the spatial and temporal context in which the performance of the routine took place. Alone, or through collective actions, agents can change and update the range of possible actions that, even if they are not exactly compliant with the ideal structure of the routine, can be anyway allowed. We call this extension *tolerance interval*. Agents elaborate how much the routine can be stretched given the contextual features that characterize the environment where *deviating* and *confronting* happened. *Tuning* implies also

crafting and updating the expectations of agents relative to future performances of the organizational routine.

Updated Tolerance Interval and Expectations

The three sequential loops of mechanisms are the way through which experience-as-stock and experience-as-flow form the dual entity of experience. They produce two outcomes. The first one is an updated range of possible actions through which enacting the routine, or the *tolerance interval*. Its extension can increase or decrease according to how the interaction between experience-as-stock and experience-as-flow happens during the organizational routine performance.

The second outcome is represented by the updating of expectations. The sequence of the loops provides new content for expectations, or it confirms the already formulated ones. The production of expectations does not regard only what to expect, but also when and where to expect it. Experience-as-flow allows to perceive and collect the features of the context where the organizational routine takes place. Expectations are thus situated, in the sense that they contain the peculiarities of the contextual set-up where the experience, from which the expectation comes from, happened.

The updated *tolerance interval* and expectations nurture the experience-as-stock that will be used to perform the next performance of the routine. This cycle repeats and new experience is then collected to adjust again how much the routine can be stretched and to imagine what could happen in the future (Figure 3).

DISCUSSION

The experience that agents possess and constantly make performing organizational routines at Peggy Guggenheim Collection allows -and explains why- the organizational routines we observed “stay on track” (Schultz, 2008) despite the external shocks caused by high levels of personnel turnover. In the model we derive from our theoretical and empirical

work, we start from the distinction between experience-as-stock and experience-as-flow: experience-as-stock is a temporary entity within an ongoing process, experience-as-flow, and is thus continuously embedded in a state of becoming (Langley et al., 2013). Assuming this processual perspective on experience in organizational routines allows us to let emerge how experience contributes to maintaining routines' variety and routines' performance stability. The experience mechanisms of deviating, confronting, and elaborating generate and update the variety of the routine that is expressed by the *tolerance interval*. The *tolerance interval* represents the extent to which agents' actions can deviate without causing a breaking down of the organizational routine, assuring than the stability of the routine itself. In the next sections, we discuss the implications of our model.

The Tolerance Interval: How Much the Organizational Routine Can Be Stretched

Organizational routines are not fixed and immutable. They are ductile and can be stretched (Deken, Carlile, Berends, & Lauche, 2016). Their internal variety is constantly redefined by agency (Feldman, 2000; Feldman & Pentland, 2003). Our research empirically shows how variety is created, maintained and adapted, from performance to performance, preserving the routine stability. Studies on routines dynamics (Feldman et al., 2016) explain the unfolding of organizational routines and their variety without questioning how variety is managed by the agency, but focusing mainly on the interaction between agency and the structure of the routines (e.g. Dionysiou & Tsoukas, 2013). Our study gives priority to the mechanisms that characterize agency, exploring the dynamism of experience. So doing, we uncover that every agent who participates to the organizational routine performance develops and updates the extension of the internal variety of an organizational routine, the *tolerance interval*.

The *tolerance interval* is the range of the possible actions that agents can perform to enact their phase of the routine, given the features of the context. It includes the variety of

actions that the agents have experienced and that the organizational routine can tolerate. Therefore, the *tolerance interval* represents how much the routine can be stretched without collapsing. The *tolerance interval* refers to the routine and its adaptability. Therefore, the *tolerance interval* defines the boundaries of routine dynamics, collecting the experience related to all the possible situated actions for enacting the routine itself in the agents' memory (Miller et al., 2014; Miller, et al., 2012). The *tolerance interval* is generated and continuously adjusted by the interaction of the experience-as-stock and experience-as-flow. For this reason, the *tolerance interval* belongs to and differs for every agent who, participating in the performance of the routine, differently experiences how much the routine can be stretched: "Because individuals perform different tasks within routines, their experiences and resulting learning are unique." (Miller et al., 2012, pp. 1536–1537).

Despite the *tolerance interval* has an individualistic dimension, the mechanisms through which it is constantly tested and updated reveal that it is collective in nature. The extension of the *tolerance interval* and its boundaries result from the interaction with the other performing agents. Being experience collectively developed, the *tolerance interval* is not the outcome of individual psychology, but it is affected and shaped by the involvement of the other agents. The interaction of experience-as-stock and experience-as-flow generates a mechanism of social convergence that is the process through which organizational agents reach a kind of agreement in how to enact an action (Suarez & Montes, 2019, p. 592).

The *tolerance interval* formation, development and implementation are nurtured by experimentations (Bucher & Langley, 2016) of the agent's experience. The resulting gap between the experimentation and the ideal structure of the routine is then confronted, and its consequences are elaborated. The *tolerance interval* boundaries are endogenously confirmed, stretched or reduced.

The analysis of the extension or reduction of the *tolerance interval* supports us in challenging the idea that “With repeated experience, average performance improves and variability is reduced” (Denrell & March, 2001, p. 524). The more the interaction between experience-as-stock and experience-as-flow is deeply and fully exploited by agents, the more variability is experimented and can be tolerated. In other words, when agents are alert to capture the dynamics of experience-as-stock and experience-as-flow, they can better adapt, manage and accept deviations from the norm. With experience, agents reinterpret the meaning of the ideal structure of the routine. From a strict organizational rule of behaviour, the routine structure becomes a guideline. The use of the routine structure as a map (Pentland & Feldman, 2007) is an achievement of experience that provides agents with the ability to read and exploit that map. The full sense of the routine structure is reached only when complemented by the experience. The result of this complementarity is the *tolerance interval*, that is the expression of the ability of agency in capturing routine fragility (Cohen, 2007) and robustness.

The analysis of experience as the dynamic and constant relation of experience-as-stock and experience-as-flow allows us to explain how the structure of the routine can suggest and represent a set of possible patterns of interaction (Pentland & Rueter, 1994) instead of a unique way in which performing it. The collective nature of experience, and thus of the *tolerance interval*, suggests that the routine variety is collectively generated, even if it is stored, tested, and elaborated by each individual uniquely.

Giving and Collecting Feedback: Internal Adjustment of Organizational Routines

Organizational routines are collective mechanisms (Becker, 2004; Feldman & Pentland, 2003) driven by collective processes (Dittrich, Guérard, & Seidl, 2016; Dittrich & Seidl, 2018). They depend on the group of individuals involved in performing them (Feldman & Pentland, 2003; Hodgson, 2009). Individuals are connected thanks to the organizational routine (Feldman & Rafaeli, 2002) that provides the necessary coordination (Grant, 1996) to achieve an objective

and so doing forms a network of individuals. Our research shows how this network is continuously generated and tightened by the dynamics of experience. Our investigation shows that to maintain the routine on track (Schultz, 2008), the structure of the routine is not sufficient. The experience of agents and how they collectively develop it assume a relevant role in making the routine persistent over time. More in particular, experience renovates routines' variety, within those boundaries that prevent the routines' breakdown.

We show that experience-as-stock allows agents to know how they can break some rules without generating a breakdown of the overall organizational routine. Experience-as-flow allows agents to situate and test their experience-as-stock. Contextualizing the action (Dionysiou & Tsoukas, 2013; Howard-Grenville, 2005), experience-as-flow captures the features of the environment where the performance of the routine is taking place. The adaptability and flexibility of the routine (Howard-Grenville, 2005), given some contextual features, come from the experience of agents.

We show that experience affects the role that agents have while performing the routine relative to the other participants. Through experience, agents become the gatekeepers of the routine. When inexperienced agents make mistakes, experienced agents figure out how to repair them (Bertels et al., 2016). Giving feedback on the actions performed by the others, agents shape each other experience and affect the extension of the *tolerance interval*. The collective nature of experience is what allows the variety of the routine to be contained in some boundaries that are socially accepted. For this reason, experience has a crucial role in contributing to organizational routines maintenance: the boundaries of the *tolerance interval* are approved by the collectivity of agents involved in the routine performance and not only by a single individual. The flexibility and stability of the organizational routine are, therefore, the result of the collectivity that surrounds the agent while performing their phase in the routine. While performing their phase of the routine, agents are constrained actors not only because the

structure of the routine imposes some limits to action (Pentland & Rueter, 1994). However, through the interdependency of phases, every agent is bounded by the control, reaction and judgment of the other participants. Agents manifest a covert or explicit contestation (Howard-Grenville, 2005) and so doing, they affect the experience of other agents, and in turn, how much they allow the routine to be stretched.

Challenging and Overcoming Common Alternative Frameworks

Our research focuses on experience as a dynamic property of agency that determines the inner variety of organizational routines that, in turn, makes them persistent over time. For which reasons experience is the proper perspective through which observing how organizational routines are maintained in the organization? In the next sections, we discuss our model in light of alternative frameworks and explanations.

Beyond the ostensive-performative framework. Organizational routines development is usually explained as the interaction of its two dimensions, the ostensive and performative one (Dionysiou & Tsoukas, 2013; Feldman & Pentland, 2003). The back and forth from one dimension to another gives dynamism to the organizational routine and nurtures its internal variety (Dionysiou & Tsoukas, 2013). As a result, the routine is, on one hand, a unique abstract representation of a process, on the other the set of the different interpretations that agents develop while performing it (Feldman & Pentland, 2003; Koumakhov & Daoud, 2017). How do uniqueness and multiplicity live together in organizational routines?

We explain this twofold and apparently contrasting nature of organizational routines focusing on agency instead of on routines. We, therefore, start from but overcome the ostensive-performative framework. This framework refers to how the routine works and leaves the engagement of agents in the background. Although variety is a property of the routine, its primary source is the engagement of agents in the routine performance. We thus bring agency to the front. The ostensive and performative framework treats structure and agency as given

units and focuses on the effects of this relationship for the routine. Our model is based on the observation that this relationship is affected by how the internal dynamism of agency works: the unfolding of the agent's experience. The dynamism that the experience generates within agency affects then how agency deals with the routine structure and vice versa. To fully understand, predict and manage the mutual interaction of agency and structure is thus necessary to explore what makes agency what it is when it relates to the structure of an organizational routine. During the routine performance, each agent acts and stores how the routine can be enacted according to experience. The routine structure is thus performed through the interaction of experience-as-stock and experience-as-flow. Our model shows that the experience-as-flow adds or erases the possibilities of actions proposed by experience-as-stock providing more explanation on patterning (Goh & Pentland, 2019). Moreover, our model shows that the structure of the routine is stored in experience-as-stock where it assumes a unique form for every agent, given that it is strictly dependent on the personal experience that every agent collects through the interaction with the experience-as-flow. Therefore, even if the structure of the organizational routine has some common features that are recognized by every agent, the ostensive dimension of the routine presents some differences from agent to agent, given how they collected the experience during and after the performance of the routine.

Through experience, we assume the agentic perspective on organizational routines. Our research shows how every agent contributes to the adaptation, flexibility and persistence of the routine itself through the mechanisms of experience. We empirically show how through the interaction of experience-as-stock and experience-as-flow, agents take over the organizational routine, in a constant back and forth from what is internalized – the body of experience- and the relation with the environment external to the individual– the flow of experience. Taking over implies that agents, using as a point of reference how the routine should be, adjust and adapt it to every situational context where the performance of the routine takes place. Taking

over involves making sense of the routine and depicting the different shades that its performance can assume. The interaction of the ostensive and performative dimension is thus only where the experience of agents acts.

Experience and learning. Organizational routines trigger learning processes (Annosi, Martini, Brunetta, & Marchegiani, 2018; Nelson & Winter, 1982). When a change happens within organizational routines, a process of learning is activated at the organizational level (Feldman, 2000, p. 625). Learning unfolds in organizational routines through agency (Feldman, 2000), and routines' recursiveness allows agents to constantly affirm and impress in their memory the acquired experience, transforming it in knowledge.

Experience is an important source of learning, and for this reason, learning and experience are two separate, even if strictly linked, entities (L. Argote, McEvily, & Reagans, 2003). Focusing on experience and focusing on learning implies treating two different stages of a process. Our research investigates experience as the primary source of knowledge in the fact that it activates the process of knowledge acquisition (Huber, 1991). The resulting learning is called experiential learning (Kolb & Kolb, 2005). How experience is collected and shaped affects then how learning occurs and as a consequence, the knowledge coming from this process. Our research focuses on how the source of learning – experience- is generated and develops more than on how the process of learning happens. We do not analyse how learning occurs, but how the origin of learning forms and develops.

Nevertheless, “An entity learns if, through its processing of information, the range of its potential behaviours is changed” (Huber, 1991, p. 89). The *elaborating* resulting from the third loop of our model can be interpreted as the beginning of the learning process. While being engaged in the organizational routine performance, agents are involved in the double-loop learning process (Feldman, 2000), or a process where there are a re-consideration and a modification of values (Argyris, 1983). However, we discuss it without separating the content

from the process, and we can explain through which mechanisms the content and the process are constantly in relation.

Indeed, experience, through its processual dimension, is situated in the context. The context where the experience is gained can be completely different from the context where experience is applied (Rockart & Wilson, 2019). An organizational routine recreates, from time to time, similar contextual features, even if their unfolding is characterized by the paradox of the (n)ever-changing world or the fact that a routine never takes place in the same context and is never repeated in the same way it was performed before (Birnholtz et al., 2007; Pentland et al., 2011). Nevertheless, organizational routines are usually applied in similar environmental conditions. So, the environment where experience is acquired only slightly differs from the context where it will be used. Our model shows that, through the experience, agents can capture the differences of the environments where the organizational routine occurs and react accordingly.

The lens of experience supports us to capture dynamics that are on the background when adopting the learning perspective. On one hand, analysing experience as a duality allows to not separate and take for granted the interactions that happen between what is collected and the process of collection. The Pragmatist perspective (Dewey, 1922, 1938, 1958) offers to reconcile processes with the entities that intervene while the processes occur. On the other hand, the lens of experience allows us to understand how agents evaluate the actions through which performing the routine, adopting the situating principle. Being the experience the means through which agents relate with the environment and vice versa, we show how agents adjust their performance of the routine according to the features of the context in which they are embedded.

Practical Implications

The research shows that not all the agents develop the same tolerance about how much the routine can be stretched, according to the experience that they have, apply, confront and elaborate at every routine performance. The result is that agents are more or less inclined to deviate and to accept the others' deviations. Therefore, managers should be aware that the agents participating in the same routine do not only develop different understandings about it but that these understandings relate to how much it is possible to deviate from the routine. It is possible to shape these understandings taking care of how agents collect and elaborate their experience during the organizational routine performance.

Moreover, to select which agents are part of the collectivity in charge of performing the routine, the research highlights the relevance of considering not only the individual features but how the characteristics and the understandings of each individual can interact with the other members of the group.

Limitations and Future Research

Our analysis is bounded in routine performance. We focus on how experience unfolds during the organizational routine performance. However, we do not question and explore how experience is also affected by the agents' participation in other activities such as training (Birnholtz et al., 2007) and by the engagement in other organizational routines (Kremser & Schreyögg, 2016). We suggest that future research could better explore the embeddedness of organizational routines in other organizational structures (Bertels et al., 2016; Howard-Grenville, 2005), to shed new light on the role of agent's experience in organizational routines.

Our investigation suggests that processes of unplanned controlling become crucial for the accomplishment of routines. The latter do not only support organizational control but are also supported by it. However, we do not explore in detail how control emerges in organizational routines that are supposed to be self-regulated without controlling effort. Future research could explore how processes of control emerge and are actually nurtured within the

organizational routine to preserve its stability, especially for those routines that are not top-down monitored.

CONCLUSION

Our research advances organizational routines understanding making three contributions. In the first place, we advance our understanding of organizational routines as practices (Feldman & Orlikowski, 2011) and processes (Langley et al., 2013). We show that organizational routines result from a continuous renegotiation between agents' body of experience and the processual flow of experience itself. We claim that to understand how organizational routines evolve in their internal variety it is not only necessary to investigate routines as processes. However, it is crucial to focus on agency and its internal dynamics. We show that the agency's dynamic property of experience, realizing the interactions among the routine participants (Feldman, 2000), affects the organizational routine persistence through adaptation to the context.

Secondly, we contribute to organizational routines literature by shedding light on how actors manipulate the institution in which they are embedded – in this case, organizational routines. We show how agents develop their own representation of the organizational routine structure and performance. Even if there are commonalities in agents' understandings (Dittrich & Seidl, 2018), each agent uniquely develops the range of possible actions through which the structure of the routine can be enacted, through an act of appropriation. This takeover explains how agents are able to manipulate the routine. Through experience, agents create a bridge between their own individuality and the external context that the organizational routine defines. As a result, agents appropriate and modify the structures in which they are embedded, and that in turn will constitute the external environment where the agent acts.

Finally, we show how the “collective” involved in organizational routines exercise a direct influence on the routine itself. The strength of the routine as a collective process relies

on the fact that the group of agents involved in it, through their implicit and explicit actions, signals reactions to the experimentations of the other agents (Bucher & Langley, 2016). We uncover that experimentations are evaluated based on how the others react to them and we reinforce the importance of collective sensemaking of organizational routines unfolding (Feldman, 2003; Feldman & Rafaeli, 2002; Turner & Rindova, 2012).

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FIGURE 1

Hierarchical structure of agents involved in rotation

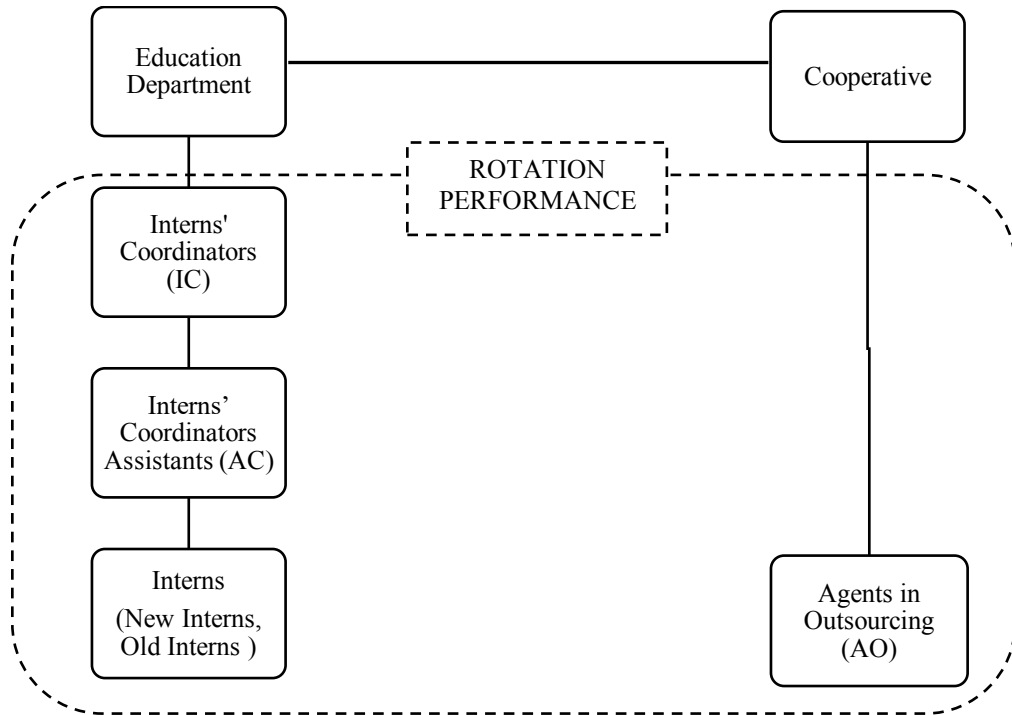


FIGURE 2

Connecting deviations, experience-as-stock, experience-as-flow

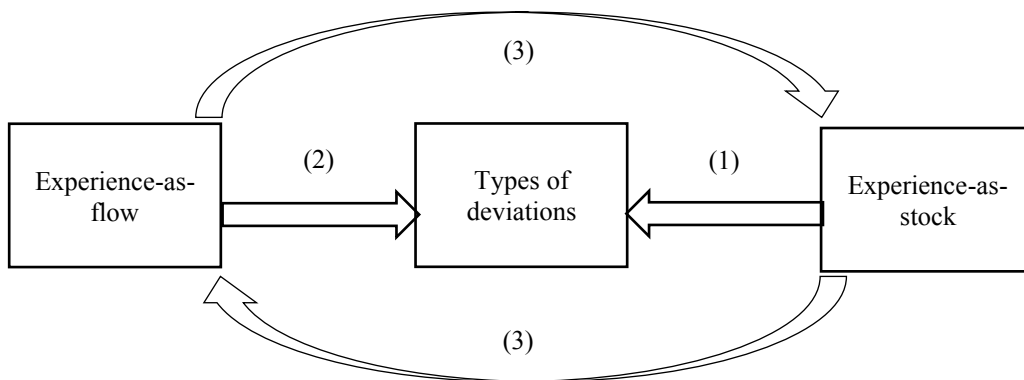


FIGURE 3

Duality of Experience-as-Stock and Experience-as-Flow in Organizational Routine Performance

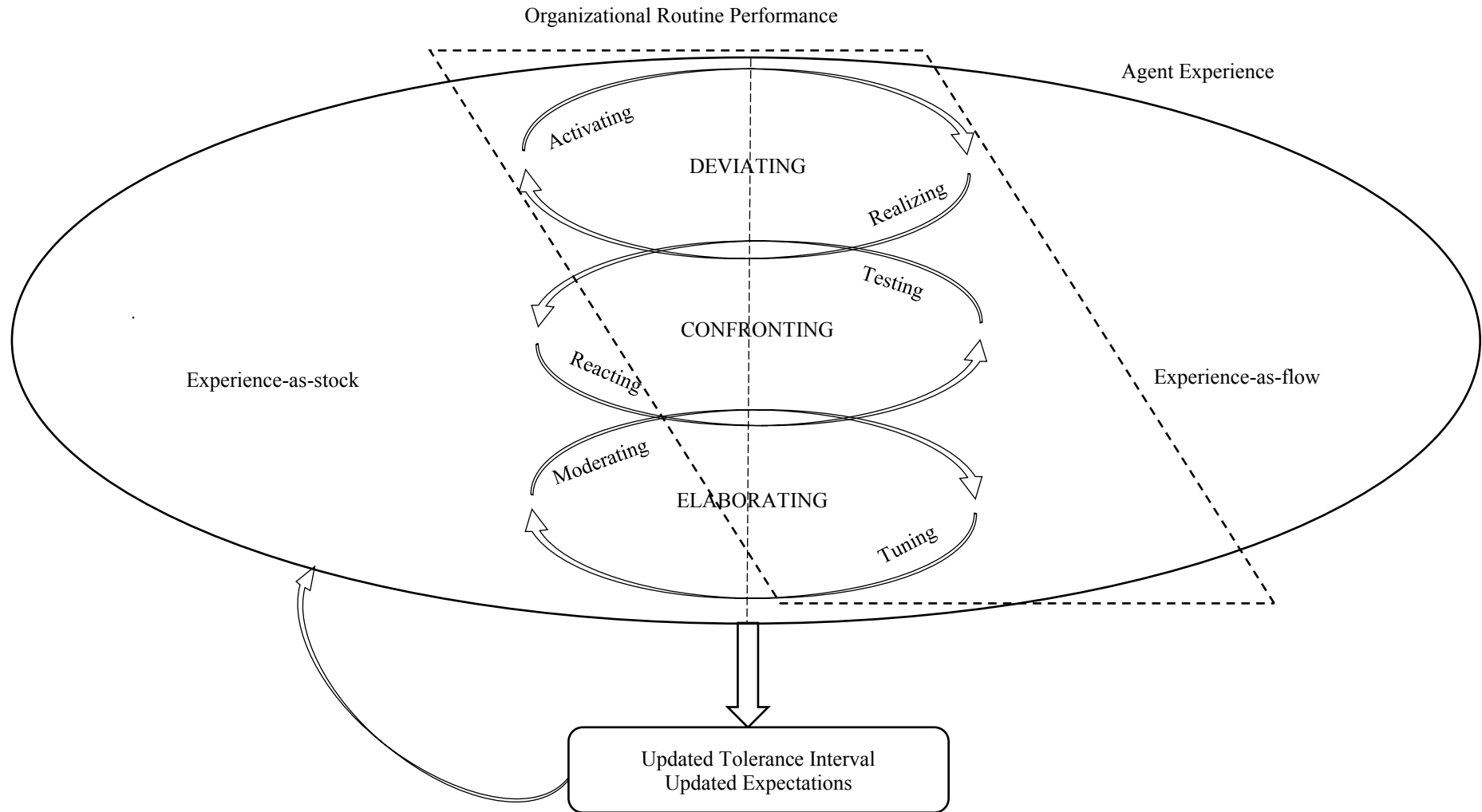


TABLE 1
Coding Deviations in Routine Performance

Quote	First Order	Second Order	Aggregate Dimension
<ul style="list-style-type: none"> • <i>Observation.</i> 12.45 pm: R1.12.55 pm: The rotation has not started yet. 1.00 p.m.: still there is no rotation. 1.00 pm: NI in charge of rotation goes out of the museum to eat with other Interns, passing through R1. 1.10 pm: still there is no rotation. 1.10 pm: rotation starts. IC is in R1 and she/he starts rotation.1.11 pm: NI in charge of rotation comes back passing through R1. IC sees NI. IC says that she/he missed the rotation and to be careful next time. 	Forgetting to start rotation	Forgetting	Deviations of Mistake
<ul style="list-style-type: none"> • <i>Interview.</i> “I know everybody makes mistakes and they... miss the time” 			
<ul style="list-style-type: none"> • <i>Observation.</i> Guard in R3 (AO) forgets to give walkie talkie to guard who will stay in R3 for the next hour. AO goes to R4 and then comes back to leave walkie talkie in R3. 	Forgetting an action of the task		
<ul style="list-style-type: none"> • <i>Interview.</i> “people sometimes forgot... that they have to pass the walkie talkie or that they need a walkie talkie” 			
<ul style="list-style-type: none"> • <i>Observation.</i> Guardian in R6 is a NI giving a break. NI is going away when the guardian from R6 arrives in R7. AC is following rotation. AC says to NI to follow her/him to R8. NI says to be confused about how the rotation works. AC says to never leave the position. 	Leaving the position before enacting the task	Misunderstanding	
<ul style="list-style-type: none"> • <i>Interview.</i> “I know that when people switch room then they might go in the wrong room. That messes up all the order...” 	Going in the wrong room being confused by the context		
<ul style="list-style-type: none"> • <i>Observation.</i> NI in R2 goes in R4 instead of R3 but OI in R4 says to her/him that she/he is wrong. NI goes in the right room, R3. 			
<ul style="list-style-type: none"> • <i>Observation.</i> The guard of R3, who is giving a break, goes in R4. In the meanwhile, the AO who was on break arrives. AO completes the rotation going to R4, but he/she does not say to the guard of R4 to rotate (he/she is a NI). The rotation is blocked for a while. Then the NI realizes that there is an AO in the room and he/she goes to the next room. 	Rotation jam: no communication		
<ul style="list-style-type: none"> • <i>Interview.</i> “I was a New Intern... I was talking to a visitor and the person who was in the previous room came to my room and she/he obviously was supposed to make sure that I moved on to the next room as well, either by, you know, making sure that I see her/him, ..., I move along and if I don't see her/him tell me, you know, warn me that it is rotation and so on. But she/he didn't do that, she/he only stopped in the room, you know, like stood there like a sack of lemons and I didn't notice her/him because I was, 			

you know, talking with people and I couldn't get... you know, (I was) quite absorbed in that"			
<ul style="list-style-type: none"> • <i>Observation.</i> AO in R4 is stopped by two visitors who ask her/him some information about the museum. • <i>Interview.</i> "sometimes even visitors, I think, would stop you to ask you a question, which happens as you walk to rotate" 	Being slowed down by visitors	Forced deviating given unplanned external causes	Deviations of Response
<ul style="list-style-type: none"> • <i>Observation.</i> Guard in R5 (AO) goes in R6 and asks which rooms to guard. 	Asking for support in performing interrelated routine	Asking for support	
<ul style="list-style-type: none"> • <i>Observation.</i> NI guarding is here to substituting. She/he asks NI of rotation what she/he has to do. An OI arrives and the OI says to go to R2. • <i>Interview.</i> "I remember, the first time, someone came, an Agent in Outsourcing, and she/he said to me 'Rotazione' and I said 'Ok, so I go in that room?'. She/he said 'Yes yes, that's it' " • <i>Observation.</i> In R1, NI of rotation asks NI coming from R5 if she/he has to say that rotation is over on the walkie-talkie because it's 11 am. • <i>Interview.</i> "if you don't know where to go, you can ask" 	Asking for support in performing the routine		
<ul style="list-style-type: none"> • <i>Observation.</i> The guard of R7 (AO) goes to R8 but no one is there. R8 (NI) is in R9. AO says that this is not the right place where to stay to NI. • <i>Interview.</i> "if an AO would take a break then that would sometimes cause confusion if they would come back during the rotation. Especially if it was a New Intern who was like covering the break. That was kind of cause a bit of chaos during the traffics, but ehm like I said it is always pretty easy to fix because there is always someone in front of you and someone behind you." 	Correcting the misunderstanding	Correcting given divergencies of mistake	
<ul style="list-style-type: none"> • <i>Observation.</i> Guard in R2 (OI) goes in R3 where an AO is. AO is going away without giving the walkie-talkie, OI asks for the walkie-talkie. • <i>Interview.</i> "I was trying to give the walkie to (her/him), she/he was like 'No that's yours'" 	Correcting the agent's oversight		
<ul style="list-style-type: none"> • <i>Observation.</i> Guard in R3 goes to R4.... The guard arrives in the next room and a visitor immediately stops her/him...In R4, there is an AO and given the fact that OI does not go to her/him to communicate that this is rotation, AO stays in position. Only after 3 or 4 minutes, AO asks if it is rotation and OI replies. 	Correcting rotation jam		
<ul style="list-style-type: none"> • <i>Observations.</i> In R2: AO introduces him/herself to NI. 		Supporting in performing	

<ul style="list-style-type: none"> • <i>Observations.</i> In R3: NI presents him/herself to AO. 	Introducing agents who do not know each other		
<ul style="list-style-type: none"> • <i>Observation.</i> In R5: AC is here, and she/he is introducing NI to AO. 	Supporting in performing rotation		
<ul style="list-style-type: none"> • <i>Observation.</i> AO says to say that the rotation is started on the walkie-talkie. 			
<ul style="list-style-type: none"> • <i>Interview.</i> “the first time doing rotation it was more like ‘What??’ I mean I really have to do to ten to nine, ten to eleven, but again ‘What???’ where is the walkie talkie, and stuff, so... basically, you knew what you had to do but it was always nice to have the Old Interns telling you like ‘Yeah just take the walkie and go’ (the interviewee laughs), so...” 			
<ul style="list-style-type: none"> • <i>Observation.</i> The guard of R5 (NI) goes to R6. In R6, there is an AO. AO says how to use the tool to count how many people enter the room, gives walkie-talkie, and gives her/him the bags in case some visitors need them. AO says that if NI has some problems, she/he can ask her/him because she/he will be in the other room 	Supporting in performing the interrelated routine		
<ul style="list-style-type: none"> • <i>Interview.</i> “during rotation, I said: ‘Look, you can stay here, this is the best point to see this artwork and that artwork and to ask people not to touch.’ ” 	Chatting	Breaking rules – collective action	Deviations of Deliberation
<ul style="list-style-type: none"> • <i>Observation.</i> In R5, chat between AOs. 			
<ul style="list-style-type: none"> • <i>Interview.</i> “after an hour of silence...I like to chat a bit with the guard who is in the following area...” 	Going to the restroom based on collective agreement		
<ul style="list-style-type: none"> • <i>Observation.</i> The guard in R5 (OI) goes to R1 and asks to OI of rotation to go to the bathroom. OI goes and then comes back. 	Leaving the rotation area-context	Breaking rules – individual action	
<ul style="list-style-type: none"> • <i>Observation.</i> The guard in R11 is an OI. Before going to R1 she/he goes in the Interns’ Room to leave her/his coat. 	Going to the restroom		
<ul style="list-style-type: none"> • <i>Interview.</i> “sometimes I used the rotation time to run and then come back” 			
<ul style="list-style-type: none"> • <i>Observation.</i> The guard in R10 (AO) goes to the bathroom. 	Anticipating	Inaccurate performing	
<ul style="list-style-type: none"> • <i>Interview.</i> “There was this gossip of some Agents in Outsourcing who were used to go to the restroom while rotating.” 			
<ul style="list-style-type: none"> • <i>Observation.</i> 10.45am: OI starts the rotation before the scheduled time. 	Delaying		
<ul style="list-style-type: none"> • <i>Interview.</i> “People started to do a rotation at 3.45pm which is not a big deal, but you know there’s this kind of punctuality” 			
<ul style="list-style-type: none"> • <i>Observation.</i> 10.55 am: OI arrives in late and starts rotation. 			

TABLE 2
Coding Experience

Quote	First Order	Second Order	Aggregate Dimension
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<ul style="list-style-type: none"> • <i>Interview.</i> “We always noticed with every group that at the end of the month you know when they were supposed to leave, they used to get used to bad habits” 	The more the experience, the worse the habits	Negative effects of the temporal evolution of experience	The Dynamicity of Experience Affects the Routine
<ul style="list-style-type: none"> • <i>Interview.</i> “the bad thing is that once you are in your third month everything is so frustrating because you are always doing the same things... and you miss the sensation of taking care of something” 	The more the experience, the less the importance of doing the routine		
<ul style="list-style-type: none"> • <i>Interview.</i> “the first week of new (Interns) there are always little mistakes.” 	Being inexperienced means mistaking		
<ul style="list-style-type: none"> • <i>Interview.</i> “being an Old Intern, I was less intimidated by the circle, the confusing rotation. So, I was more comfortable with how everything worked, and I could remember where to go, and where to have a walkie talkie so maybe just more comfortable.” 	The more the experience, the more the familiarity	Positive effects of the temporal evolution of experience	
<ul style="list-style-type: none"> • <i>Interview.</i> “during the first month, you always feel this necessity to do everything right, but Agents in Outsourcing may not have..., they have been working in the museum for several years already. And they feel quite relaxed.” 	Different experiences result in different approaches to organizational routine		
<ul style="list-style-type: none"> • <i>Observation.</i> (during training day) IC says ... <I know it seems abstract, but once you do it you get it> 	Learning by doing through personal experience	The Context for the Experience	
<ul style="list-style-type: none"> • <i>Interview.</i> “Agents in Outsourcing have been working at the museum, some of them for years, and they do know a lot. Maybe they are not art historian, but fancy degrees. But they, you know, they do know a lot about how things work in this institution, the museum, and just about people in general and what to watch, how to do something, and you know, we could certainly learn from them.” 	Learning by the others’ experience		
<ul style="list-style-type: none"> • <i>Interview.</i> “we quickly manage situations with a specific language, with specific positions that are called as they are called only by us. Another person cannot understand...it is simply another world, another language, another logic” 	The experience shapes the context through language	The Experience for the Context	Experience as a Transaction
<ul style="list-style-type: none"> • <i>Interview.</i> “just think you have two different groups of people... Like with the AOs, like it’s easy to get the rhythm of a job down like path when you do it every day ‘cause it’s your actual job. So, with the Agents in Outsourcing, it was their actual job, and they did it for more than a couple of months. So, they almost had, they had a routine down and everything. And then the Interns were only were constantly being trained and new, and they’re getting used to the system... for Agents in Outsourcing, it was like an everyday job, ...” 	The experience shapes communities		
<ul style="list-style-type: none"> • <i>Interview.</i> “during my second month,...exactly for what I was saying before that the more you do things the more you get the importance of 	Replicating what was experienced	Experience is shared	Shared and personal experience

what you are doing at that moment...thinking that for me Old Interns have been a model to follow...then I put the effort into doing things as better as I could so that New Interns could understand also without asking..."			
<ul style="list-style-type: none"> <i>Interview.</i> "based on my own experience...I'm saying for example because of the first thing ... that you notice when you start the Internship during the training day is that the schedule is very difficult to understand if you don't know how it works, even if they do explain to you the first day, it is just difficult to understand until you actually start to do it. So, a lot of people have trouble in that, for example, and you need to kind of just take care of the schedule and be on top of people especially new people who don't know how it works." 	Relying on personal experience	Experience is personal	
<ul style="list-style-type: none"> <i>Interview.</i> "I'm telling my experience, but you have to experience it to understand it of course." 	Experience is unique for everyone		

TABLE 3
Coding Experience Mechanisms in Routine Performance

Quote	First Order	Second Order	Aggregate Dimension
<ul style="list-style-type: none"> <i>Interview.</i> "I have always confused the rooms... You explain the second Surrealist room before the Pollock room and, with Pollock, you usually close the tour and the Old Interns' Tour... the Old Interns' Tour was different (relative to the rotation tour) and so probably I fixed it" 	Re-elaborating	Activating	DEVIATING
<ul style="list-style-type: none"> <i>Observation.</i> The guard in R2 is an OI and goes in R3 where an AO is. AO is going away without giving the walkie talkie. OI asks for the walkie talkie. 	Mindless engaging		
<ul style="list-style-type: none"> <i>Interview.</i> "I was doing rotation... in R1 there was a colleague of mine...who never saw the snow... I said 'Now we do it (rotation) a bit in late because you have to go to see the snow'" 	Renegotiating priorities		
<ul style="list-style-type: none"> <i>Interview.</i> "if the person who is Rotation Float doesn't come at all and you have a walkie (talkie) you should let it know that they are not yet... it's one of your responsibilities." 	Triggering responsibility		
<ul style="list-style-type: none"> <i>Interview.</i> "you have to avoid to speak with visitors (during rotation)... it happened sometimes." 	Dealing with the unusual	Realizing	
<ul style="list-style-type: none"> <i>Observation.</i> The guard of R9-10 is an AO. The AO goes to R11. In R11, there is a NI. AO asks to go to take off the jumper. NI says yes. So, the AO goes to the bathroom. 	Being explicitly legitimized		

<ul style="list-style-type: none"> • <i>Observation.</i> Agent coming from R1 talks with the agent in R2. AC is here and does not intervene. 	Being tacitly legitimized		
<ul style="list-style-type: none"> • <i>Observation.</i> The guard of R2 is a NI. NI goes in R4 instead of R3. In R4 there is an OI who says to NI that she/he is in the wrong room and NI goes in R3. 	Fixing	Reacting	
<ul style="list-style-type: none"> • <i>Observation.</i> AO in R3 goes to R4. R4 is empty. The AO asks for Interns' Coordinator intervention by walkie talkie. IC arrives and goes to R5. At 12.50 pm, the NI left her/his position and did the rotations by her/his own. IC explains to NI how rotation should be performed. 	Being fixed		
<ul style="list-style-type: none"> • <i>Interview.</i> "I think after a while your attention is going down like, just because you are standing in the same room all day" 	Situating what happens	Moderating	ELABORATING
<ul style="list-style-type: none"> • <i>Interview.</i> "Sometimes people are only getting lazy and they don't want to do anything, they are bored, they want to talk to someone." 	Judging what happens/ed		
<ul style="list-style-type: none"> • <i>Interview.</i> "if everyone slows down, then 15 minutes is cut out someone else time. It's not respectful to them that they got cut off because someone else has been slow." 	Adjusting	Tuning	
<ul style="list-style-type: none"> • <i>Interview.</i> "some people said: 'When there is that person the rotation slows down because she/he stops talking'" 	Projecting		
<ul style="list-style-type: none"> • <i>Interview.</i> "You are part of a group so, if you're gonna make a mistake the group itself corrects the mistake." 			
<ul style="list-style-type: none"> • <i>Interview:</i> "I know that like a couple of people like go to the bathroom while they're rotating so that like this obviously slows down everyone." 			

APPENDIX A

Track of Questions – Intern’s Interview

(Before starting the interview, giving information relative to anonymity and privacy, asking the consent for recording, illustrating the topic of the research and the possible outcomes – publication and diffusion in scientific area)

General background information

- Which is/has been your role in the museum?
- For how long did/have you work/been working in the museum?
- Which is your educational background?
- Before the Internship at PGC, did you have previous professional experience? Could you tell me more?
- Has your previous experience influenced the tasks you were required to do during the Internship?

Being trained

- Could you tell me about the training day?
- Do you think that something would change without the training day?
- Could you tell me about the training you received to perform the activities you were in charge of?
- Could you tell me about how you learnt how to do all the activities in the museum? For example, the talks? Guarding the galleries?
- Who are the people that gave you the necessary information to perform the activities you were required to do? And on which occasions did they give you this information?

Being a trainer

- Did you ever explain to someone how to do an activity? Could you give an example?

- Which is the information that you used to train? Where does this information come from?
- In which occasions did you share the information?

Rotation Routine

- Could you explain to me what the rotation is?
- How would you explain the rotation to a new Intern who is guarding in the galleries?
- How would you explain the rotation to a new Intern who has the role of Rotation Float?
- How did you learn how to do the rotation? Who were the people that gave you the necessary information to do the rotation?
- When would you describe the rotation as effective? For which reasons? And in which occasions would you describe a rotation as non-effective?
- For which reasons do you think the rotation is done within the museum?
- Could you tell me your experience of rotation as a new intern? And as an old intern?

Turnover

- What do you think about the fact that every month there are some new Interns that substitute old Interns?
- Could you tell me what happens when, at the beginning of the months, new Interns arrive?
- (If the interviewee says that there are some changes) Could you give me some examples of the changes?

Closing questions

From your point of view, how could the work and services of the museum be implemented?

- How do you think that the Internship Program could affect your future professional life?

APPENDIX B

Track of Questions – Education Department Staff’s Interview

(Before starting the interview, giving information relative to anonymity and privacy, asking the consent for recording, illustrating the topic of the research and the possible outcomes – publication and diffusion in scientific area)

General background information

- Which is your role in the museum?
- Have you ever had this role in the museum?
- Which is your role relative to the Internship Program?

Training day (nowadays)

- For which reasons is the training day performed?
- For which reasons the training day is structured as it is?
- Do you give instructions to IC on how to conduct the training day?
- Are there some procedures/schedule to follow?
- You participate in training, for which reasons?

Training day (in the past)

- How was the training day and how is it today?
- Which are the things that are change?
- For which reasons are they changed?

Internship Program

- Monthly turnover. What do you think about it?
- Which are the pro and the cons of the monthly turnover?
- Which are the effects of the monthly turnover on Interns’ activities?
- Which are the effects of the monthly turnover on staff activities?

- Interns are involved in different activities. As far as you know, are these activities changed?

Agents in Outsourcing

- As you know, Interns do not work alone, but they interact with Agents in Outsourcing for carrying on for example the rotation. Who is in charge of managing Agents in Outsourcing?
- What do you think about Agents in Outsourcing's role in the museum?
- What do you think about Agents in Outsourcing's role relative to the Internship Program?

IV.

Third paper. From outside to inside: embeddedness for control in organizational routines

Lisa Balzarin

ABSTRACT

Organizational routines stability allows for the regular unfolding of the daily organizational life. Given that routines endogenously change, systems of control are necessary to maintain them on track. However, formal and direct mechanisms of control can fail in this purpose and need to be complemented with other systems of control. The paper explores how control manifests in organizational routines performance and so how it becomes part of their internal dynamics. The observations in a museum where a group of Interns is in charge of performing several organizational routines show that, to maintain routines on track, the practices in which routines are embedded trigger performing agents to monitor each other, and, thus, to assume not only the role of performer, but also that one of controller of the organizational routines.

Keywords: organizational routines, control, embeddedness

Organizational routines are recurrent patterns of interaction (Feldman & Pentland, 2003) constituted by a structure and by the engagement of organizational actors in them, agency (Emirbayer & Mische, 1998). Every organizational routine has a specific impact on daily organizational life. For this reason, the organization relies on the stability of routines (Becker, 2004). Such stability is expressed by the structure of the routine that provides the routine participants with a map to follow to enact the routine. (Pentland & Feldman, 2007). However, agents do not always stick to the map (den Nieuwenboer, Cunha, & Treviño, 2017; Feldman, 2000; Feldman & Pentland, 2003). Control systems are applied in order to prevent such deviations.

Organizational control realizes in different forms. It is formal and informal (Cardinal, Sitkin, & Long, 2004). It is direct, when explicitly exercised (Errichiello & Pianese, 2016), or indirect (Errichiello & Pianese, 2016) when it acts through training and socialization (Eisenhardt, 1985). Organizational control differs giving its purposes: outcome control measures the outcomes of performance, behavioural control aims at overseeing individuals' actions (Ouchi & Maguire, 1975). Organizational control depends on who exercise it: it is top-down (Ouchi, 1979), bottom-up, and among peers -for example, through peer monitoring (Loughry & Tosi, 2008).

Organizational routines are under the influence of different types of control. Routines' participants develop forms of resistance to direct top-down control (Becker, Lazaric, Nelson, & Winter, 2005; Prasad & Prasad, 2000). The result is that to maintain routines on track this approach might be inefficient. However, routines are affected by other forms of control that help the routine to stay on track. The context where the routines are embedded (Howard-Grenville, 2005) is populated by different control systems. Embeddedness is the "process through which routines are coconstituted with other generative systems" (Bertels, Howard-

Grenville, & Pek, 2016, p. 591). Control is one of them. For example, the indirect control exercised by training activities allows for the repetition of routines (Birnholtz, Cohen, & Hoch, 2007). The training transfers the organizational routines knowledge and the organizational culture that affect the unfolding of organizational routines (Bertels et al., 2016; Birnholtz et al., 2007). The control exercise from the external environment influences organizational routines, and, more in particular, their internal dynamism (Feldman, Pentland, D'Adderio, & Lazaric, 2016).

Despite organizational routines are influenced by the control systems that populate the context in which they are embedded, it is still uncovered how these systems enter to be part of the routines dynamics, to maintain them on track. Routines contain dynamics of regulation that allow the routine to find a truce (Salvato & Rerup, 2017). The internal dynamics of organizational routines (Feldman et al., 2016) involves also dynamics of control, that contribute to maintaining routines as they are. The previous paper on experience shows that, in absence of direct control systems, some mechanisms of control manifest among the participants of the routine who have the same role in the organization and the routine: organizational routines stay on track also without the direct intervention of managers. The present investigation focuses on organizational routines endogenous stability, exploring how control manifests during the performance of the organizational routines.

To explore the phenomenon of control in organizational routines, I conducted non-participant observations in a museum where a large group of Interns performs several activities. The group is renewed monthly by a consistent turnover and is characterized by a high level of self-management. Mechanisms of control external and internal to the routines are analysed. The case shows that external forms of control trigger the agents to monitor each other during the routine performance, *passing on* information, *suggesting* the behaviour through which approaching the routine, *stating expectation* relative to the routine performance, and

empowering agents. Performing agents reinterpret their role in the routine, assuming responsibility on it and becoming the controllers of its stability.

The investigation provides three main contributions. At first, the analysis contributes to organizational routines literature uncovering how the embeddedness of the organizational routines in the context (Bertels et al., 2016; Howard-Grenville, 2005) influences the organizational routine unfolding, triggering peers to monitor each other (Loughry & Tosi, 2008). Secondly, the research provides an answer on how to maintain routines on track (Schultz, 2008). Finally, it provides empirical evidence of how emergent and planned control systems complement each other during routines performance.

The paper is structured as follow. The first section presents organizational routines as changing processes, provides a definition of control, connects control with organizational routines and associates control with the environment where the routine is embedded. The second section illustrates the method used to collect and analyse data. The third section presents the findings, and the following one the model that emerges from the empirical case. The paper concludes discussing the main results, the contributions, the limitations of the study and future research.

ORGANIZATIONAL ROUTINES AND ORGANIZATIONAL CONTROL

Organizational Routines Do Not Always Stay on Track

Organizational routines are recurrent patterns of interaction (Feldman & Pentland, 2003) constituted by a structure that enables, constraints and orients (Cardinale, 2018) the action of agents, and by agency or the engagement of agents in the routines performance (Emirbayer & Mische, 1998).

Organizational routines support daily organizational work from different points of view. They provide a stable ground upon which the organization can develop and change (Ansell, Boin, & Farjoun, 2015; Farjoun, 2010). Organizational routines enable creativity and

innovation (Becker & Zirpoli, 2009; Sonenshein, 2016), by decreasing the risk of a too intense exploration (Yi, Knudsen, & Becker, 2016) and supporting the organization to face a feasible change. Moreover, organizational routines absorb shocks coming from the external environment (Berente, Lyytinen, Yoo, & King, 2016), establishing a protecting shield against the turbulence of the context in which the organization acts. Organizational routines facilitate coordination among organizational actors (Grant, 1996), establishing relations (Feldman & Rafaeli, 2002) and providing a ready-made solution of how actors can collaborate to face a particular situation.

The organization relies on organizational routines recursiveness and stability, but the latter can be destabilized by agency (Feldman & Pentland, 2003). In fact, despite the organizational routine structure provides a map to follow to performing agents (Feldman & Pentland, 2003; Pentland & Feldman, 2007), sometimes they deviate from it (Feldman, 2000; Feldman & Pentland, 2003), given, for example, the adoption of some artefacts during the routine performance (D'Adderio, 2008, 2011), or what happens in the context where they take place (Bertels et al., 2016; den Nieuwenboer et al., 2017; Howard-Grenville, 2005; Safavi & Omidvar, 2016; Turner & Fern, 2012). The result of such a change can be not positive for the overall organization. Organizational control is adopted to limit the freedom of organizational actors in producing unintended outcomes and dynamics.

Organizational Control

“Tannenbaum (1968) defines control as ‘any process in which a person or group of persons or organization of person determines, that is, institutionally affects, the behaviour of another person, group, or organization’ (p. 5).” (Costa, Duarte, & Palermo, 2014, p. 408). Organizational control results from the interaction of formal and informal systems (Cardinal et al., 2004), and it can assume different nuances according to the mechanisms through which it

is exercised, the objectives it aims to reach, and the organizational actors it involves. For this reason, every organizational control system can belong to more than one category of control.

Organizational control can be exercised directly or indirectly (Errichiello & Pianese, 2016). Monitoring the agents' performance (Eisenhardt, 1985; Ouchi, 1979) is a form of direct control (Errichiello & Pianese, 2016). Indirect control is implicitly exercised. This control "achieved by minimizing the divergence of preferences among organizational members." (Eisenhardt, 1985, p. 135). It is reached through socialization and training activities that allow workers to internalize the organizational objectives and rules (Eisenhardt, 1985).

Organizational control distinguishes according to its purposes (Ouchi & Maguire, 1975). Outcome control aims at measuring outputs, given the need for providing evidence of organizational performance (Ouchi & Maguire, 1975). Behavioural control answers to the individual manager need to know how the subunit they are in charge of works and it is based on personal surveillance (Ouchi & Maguire, 1975).

Different kinds of organizational actors realize different kinds of organizational control. Top-down control is exercised by managers (Ouchi, 1979), bottom-up control by subordinates (Errichiello & Pianese, 2016). Organizational actors belonging to the same level of the organizational hierarchy can monitor each other. Peer monitoring is an informal type of peer control that occurs when individuals react to peers' behaviour and actions (Loughry & Tosi, 2008). The literature distinguishes concertive control (Barker, 1993) that "grows out of a substantial consensus about values, high-level coordination, and a degree of self-management by members or workers" (Barker, 1993, p. 408). In concertive control, the locus of control is the workers, who establish the meanings of the control they exercise.

Organizational Control to Maintain Routines On Track

Organizational routines represent and support organizational control (Becker, 2004; Parmigiani & Howard-Grenville, 2011). On the other hand, organizational control is adopted

to keep them on track. For organizational routines, top-down control can be inefficient (Prasad & Prasad, 2000). Indeed, “even where there is considerable high-level managerial control, there generally is a range of flexibility within which the routine can ‘evolve’ without management being involved.” (Becker et al., 2005, p. 779). Managers miss the detailed picture of how agents enact the routine – the forest-tree issue (LeBaron, Christianson, Garrett, & Ilan, 2016). As a consequence, they have scarce control power.

Besides, despite their relevance for the organization, organizational routines are usually taken for granted (Feldman & Pentland, 2003). Given their stability and multiplicity, frequency and ubiquity in the daily organizational life (Becker et al., 2005), control systems are not always implemented to maintain the routine on track. Even if the structure of the routine should bound the freedom of action of performing agents, limiting their space of action and imposing rules of behaviour, agency modifies it (Feldman, 2000; Feldman & Pentland, 2003). The result is that how the routine should be can differ on how it actually is (Becker & Zirpoli, 2008). The routine structure is not a sufficient internal form of control to maintain the routine on track.

The “routine performance at the individual level is equilibrium play” (Winter, 2013, p. 123). However, “some organizations arrive at ‘truces’ that support impressive organizational capabilities while others do not” (Winter, 2013, p. 123). Maintaining the truce and thus the routine on track- should be an effort that actively involves performing agents. It is not only an objective that belongs to managers’ responsibility. The engagement of agents should be oriented in achieving this aim.

In organizational routines, the interdependence of tasks creates the condition for behavioural control (Ouchi & Maguire, 1975) and peer monitoring (Loughry & Tosi, 2008). It depends on agency to activate these forms of control. The activities that populate the context where the organizational routines are embedded send control signals to agents involved in the routine performance.

Organizational Routines Embeddedness

Organizational routines are embedded in the organizational context in which they take place. Embeddedness “is not so much a state in which routines are enacted against a somewhat stable backdrop of other structures but is instead a process through which routines are coconstituted with other generative systems.” (Bertels et al., 2016, p. 591). The relations that the routine has with the external environment determine the flexibility of the routine itself (Howard-Grenville, 2005, p. 631), or the capacity to adapt and stay on track.

The environment sends signals to performing agents. Some of these stimuli are related to the organizational culture (Bertels et al., 2016). The organizational context is constituted by training activities that allow the routine to recreate from time to time (Birnholtz et al., 2007; Danner-Schröder & Geiger, 2016). Sessions of knowledge transfer enable agents to acquire the necessary knowledge to perform the routine and to question the routine itself (Prasad & Prasad, 2000). Moreover, they can encourage agents to make sense of what they are doing and to be active participants (Adler, Goldoftas, & Levine, 1999). Routines are embedded in other organizational routines (Kremser & Schreyögg, 2016; Sele & Grand, 2016) that limit or enable agents’ action. The organizational context is also characterized by spaces of experimentation and reflection about the routines (Bucher & Langley, 2016), with the result of affecting routines’ internal dynamics and unfolding (Bucher & Langley, 2016).

The contextual stimuli that come from the external environment are captured by performing agents, who bring them in the internal context of the routine. Under the influence of these stimuli, agents reorganize or disrupt organizational routines (Christianson, Farkas, Sutcliffe, & Weick, 2008; Edmondson, Bohmer, & Pisano, 2001), and let them change and decay (Anand, Gray, & Siemsen, 2012; Danner-Schröder & Geiger, 2016; Dönmez, Grote, & Brusoni, 2016). In other occasions, agents react making routines persist (Howard-Grenville, 2005) and support organizations in facing change (Yi et al., 2016). Indeed, “Organizational

members are not reducible to passive consumers of managerially designed and designated identities” (Alvesson & Willmott, 2002, p. 621) and during the organizational routine performance they exercise their power in manipulating their actions, affecting the routine and what the others do (Feldman, 2000; Feldman & Pentland, 2003). The control systems in which the routines affects their internal dynamics through agency. The present research investigates how agents react to those signals while they are performing the routine, and so how control manifests during organizational routines performance to maintain them on track.

METHOD

The present investigation is based on ethnographic research that I have conducted in the museum Peggy Guggenheim Collection, in Venice (Italy)¹. The abductive logic drives data collection and data analysis, as a complementary approach to the more common inductive research (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012). Therefore, in collecting data, I have been engaged in a constant back and forth from data and theory and from phases of data collection and data analysis (Dubois & Gadde, 2002) that redirect and redefine the research focus constantly (Dubois & Gadde, 2002).

The Case

The art museum Peggy Guggenheim Collection organizes an Internship Program for young professionals and university students. Every month, a newly formed group of about 30 Interns is in charge of performing some activities and routines in the museum, such as guarding the museum galleries, giving free art talks to visitors about the collection, and other front office activities. In doing this, Interns have to collaborate with Agents in Outsourcing (AO), who are in charge of guarding activities, and with the museum staff.

¹ Data collected through the ethnographic research has been used in order to explore a research question on how experience unfolds in organizational routine. In particular, the research uses the 244 observations on the organizational routine of rotation, the 37 interviews conducted, and it is supported by the observation of the other activities. The present research, even if based on the same collected data, analyses them (1) with a different focus -mechanisms of control- (2) and considering the data collected about another organizational routine – the talk-.

The monthly group of Interns presents three levels of hierarchy. The major part of the group is formed by “regular Interns”. Regular Interns are in charge of daily work activities. The subset of regular Interns is formed by just arrived Interns in the organization -New Interns (NI)-, and by Interns who have at least one month of experience in the museum – Old Interns (OI). To complete the group, two Interns’ Coordinators (IC) manage NI and OI, supported by two Interns’ Coordinators Assistant (AC). Therefore, despite being Interns, Interns’ Coordinators and Interns’ Coordinators Assistant are in a position of managing the other Interns. At the top management of Interns, there is the Education Department of the museum.

The group of Interns represents a team highly self-managed, despite the fact that they have to perform routines and activities top-down imposed. Given the monthly turnover, some metaroutines- that in this case do not refer to “routines for changing other routines” (Adler et al., 1999, p. 43), but for maintaining them-, such as collective and individual training, are organized every month. The objective of these metaroutines is training newcomers in performing organizational routines, because of the high rate of turnover challenges the truce of organizational routines.

The consistent amount of activities and routines that Interns are required to perform - even at the same time- impedes a constant daily control on the Interns’ work. Despite that, organizational routines are stable. Given these features, the case is particularly interesting for understanding how control works in organizational routines, as a way to maintain them on track.

Organizational Routines of Rotation and Art Talks

Rotation is the hourly change of guards in the galleries of the museum. From room R1, the guards rotate in every area of the museum. Art talks are the presentation that Interns give 4 or 5 times per day to visitors for free. Interns and museum staff refer to them as talks. Rotation and art talk are two organizational routines that present different features that make them as opposing and relevant units of analysis to investigate the research question.

Whilst rotation mainly involves only organizational agents - Interns and Agents in Outsourcing-, and it follows a strict procedure, art talks also include non-organizational actors -the museum visitors- and it presents more space of action for the creativity of agents.

For rotation, Interns are trained twice. At first, they receive a collective training where rotation is described. Then, every New Intern receives an individual – or in a couple- training about rotation to better understand the role of the agent in charge of starting and ending the rotation, the Rotation Float. The collective training aims at introducing New Interns to art talks, too. The procedure of how to perform them is quickly described, and the different typologies of the art talks are presented. Differently from rotation, Interns do not receive an individual and specific training focused on art talks.

Processes of control and feedback support rotation and art talks. Given that rotation and art talks are characterized by different features, I consider them two valuable units of analysis to investigate the research question of the present investigation.

Data Collection

I have conducted an ethnographic study (Van Maanen, 2011) for four months and a half in Peggy Guggenheim Museum. I was an Intern some years ago, thus I knew the case. Once in the field, I was surprised (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012) by the fact that routines affected by the high monthly turnover stay on track given scarce mechanisms of direct top-down control, but thanks to other forms of control that manifest during organizational routines performance. What does trigger the activation of internal dynamics of control? And how do they work? The “unexpected” (Barley, 1990) is what has been observed and investigated.

Table 1 presents all the data that I have collected and analysed to answer the research question: non-participant observations, interviews, artefacts.

Non-participant observations. To explore the research question of the present investigation, I focus on the routines of rotation and art talks. I observed their performance, and also what happened before and after. Moreover, I have observed training, meetings, formal and sporadic conversations among Interns to understand the source of the control that manifests during routines performance. All the observations have been conducted without being actively involved in the activities. In this way, I could not alter the flow of information and processes, and I could better avoid “going native”. I was a “participant-as-observer” (Gold, 1958, p. 220): the informants knew my role as a researcher and that I could not participate in their work activities. I have daily taken notes in a notebook, and then I have reported all the observations and the notes collected digitally.

Semi-structured interviews. Interns and Education Department staff have been interviewed. I have conducted 37 semi-structured interviews (Silverman, 2014). I have interviewed agents at different organizational levels. I have conducted 2 interviews with the Education Department staff, that manages the Internship Program and is in charge of scheduling and monitoring the activities of Interns, and 35 interviews to Interns of all grades in the hierarchical structure (Table 1).

Artefacts. To reconstruct the daily organizational life, material artefacts, such as manuals, maps, and daily schedules have been collected (Table 1). During the period of observation, I was part of the mailing list of Interns. Therefore, I have collected emails, too.

Insert Table 1 about here

Data Analysis

The abductive logic drives data analysis (Timmermans & Tavory, 2012; Tavory & Timmermans, 2014), and it is used as a deliberate form of conducting research (Behfar &

Okhuysen, 2018). Abduction allows for a constant back and forth from data collection and data analysis. I adopted systematic combining (Dubois & Gadde, 2002), or the effort of matching theory and reality and directing and redirecting the research focus (Dubois & Gadde, 2002). Data analysis uses Gioia's methodology for coding all the collected material (Gioia, Corley, & Hamilton, 2012). The right part of Table 1 presents how every type of collected data is used to support data analysis.

Hereunder, the steps of data analysis.

Routines of rotation and art talks: their structure. I reconstruct the main phases, rules and the role of performing agents for each routine (Table 2). The analysis is based on the observations of how the organizational routines are explained to New Interns and of the performance of the routines. I rely also on the interviews and the artefacts that support the passing on of the rotation routine (e.g. maps of the museum, slides used in training day, and the Interns' manual where the routine of rotation is explained). Reconstructing the structure of routines allows understanding which mechanisms/processes belong to the design of the routine and which mechanisms do not.

Identifying how rotation and art talks stay on track: exogenous and endogenous control. The performances of organizational routines present some deviations compared to how they should be. Deviations happen by mistake or intentionally (LeBaron et al., 2016) and the context where the routine takes place can alter their unfolding (Howard-Grenville, 2005). I identify deviations and how organizational routines have been brought on track again. Some mechanisms of control are linked to the avoidance of the breakdown of the organizational routine. These types of control happen in two different contexts. Outside the routine performance, some mechanisms of control are activated, such as training and informal conversations. I refer to this control as exogenous control. Within the routine performance,

some control mechanisms manifest as part of the routines internal dynamics. I refer to these mechanisms as endogenous control.

Coding exogenous control. The routines of rotation and art talks do not happen in a vacuum (Howard-Grenville, 2005). Other practices -activities and other organizational routines-occur outside the organizational routine performance and represent a source of exogenous control. During the observation, I realize that some control mechanisms that happens during the routine performance – endogenous control- reflect what happened in some practices external to the routine. I classify and analyse these practices. I identify each practice, and I specify when they occur, which agents are involved in them (IC, AC, NI, OI, AO, Education Department staff), the sub-activities in which the main practice is composed by, the physical place of the museum where the activity and its sub-activities take place (Table 3). Once coded exogenous control, I focus on the endogenous one.

Coding endogenous control according to who exercise it: peers, managers, structure. During the performance of routines, three types of actors exercise control altering routines internal dynamics. At first, endogenous control is exercised by performing agents. I call them peers, in the fact that they participate in the same routine. Peers monitor each other work. I refer to it as *peer monitoring* (Loughry & Tosi, 2008). Secondly, managers intervene to control the unfolding of the organizational routines, and so they control the activity of the performing agents. *Managers' supervision* refers to managers' control during the routine performance: managers alter the dynamics of the routines becoming part of the performance. Finally, the structure of the routine enables, constraints and orients agents (Cardinale, 2018) and so doing control agents' actions. *Ostensive control* refers to those control mechanisms that are designed by the structure of the routine.

Coding endogenous control according to how it is exercised: planned and unplanned control. I question how peers, managers and the structure of the routine exercise

their control. I recognize two modalities through which control is exercised within the routine performance: *planned* and *unplanned control*. *Planned control* refers to being part of the routine performance with the aim of controlling it. *Unplanned control* refers to being part of the performance of the routine without the primary objective of controlling.

I classify peer monitoring, managers' supervision and ostensive control under the light of *planned* and *unplanned control*. Peers approach the routine without the objective of monitor the other performing agents. Peer monitoring happens in the moment of the performance, as a contingent mechanism. Given that it is not planned, it is classified as *unplanned control*. When managers enter to be part of the performance of the routine, they do it with the intention of controlling the performing agents' activity. For this reason, I classify managers' supervision as *planned control*. Ostensive control refers to those control mechanisms that are designed by the structure of the routine. The structure of the routine emerges with the objective of limiting the freedom of agents' action. Therefore, ostensive control is an endogenous form of *planned control*. Given that peer monitoring is the only form of unplanned control that happens within the routine, in the present research, the terms are used to indicate the same mechanism.

If the endogenous manifestation of *planned control* clearly originates from a planning activity that happens outside the routine performance, what triggers the emergence of unplanned control during the unfolding of the routine is less evident. At first, I identify that peers monitoring happens in different ways. Secondly, I analyse how exogenous control triggers the formation of peer monitoring within the routine performance.

Coding how peers monitor each other according to its source. I code different types of peer monitoring. *Suggested control* collects all those mechanisms of peer monitoring that have been suggested to be performed during training and informal conversations. They are not usually part of the routine, but they manifest in those occasions illustrated during other organizational activities. *Required control* refers to the peer monitoring that the agents

undertake because of the action or request of other performing agents. *Spontaneous control* identifies the peer monitoring that has not been suggested during other organizational activities or is not required and part of the usual routine structure. Performing agents autonomously watch over the others. Finally, there is the *involuntary control*. Agents perform some activities with a purpose different from controlling the others, but they end up doing it. I associate with each kind of peer monitoring the principal agents who enact it.

Peer monitoring emerges within routines dynamics given two sources: the exogenous control, and the endogenous dynamism of the routine.

Coding how exogenous control influences the endogenous emergence of peer monitoring. I code how exogenous control systems that are relevant for rotation and art talks contribute to the formation of peer monitoring during the routine performance (Table 4). *Passing on* refers to the fact that practices transfer general rules, rules for the specific routines, and the routine structure. *Suggesting the approach* represents the fact that practices are used to advising how to approach the job in the museum, the tasks that Interns are required to do, and the overall Internship. *Stating expectations* implies that practices are exploited to declare what is expected that Interns do and how they should do it, what the job and the routines will be. Finally, exogenous control has the function of *empowering* agents triggering a certain kind of behaviour that makes them the people in charge of how the routine unfolds.

Endogenous dynamisms: associating unplanned control with planned control. During the organizational routine performance, the two forms of endogenous control -planned and unplanned control- are not mutually exclusive, and they affect each other. I codify how the two different types of planned control are associated with unplanned control – peer monitoring- and vice versa.

Insert Table 2 about here

Insert Table 3 about here

Insert Table 4 about here

MECHANISMS OF CONTROL IN ORGANIZATIONAL ROUTINES OF ROTATION AND ART TALKS

Planned Organizational Control During Rotation and Art Talks Performance

Rotation and art talks are controlled by some planned mechanisms. The first one is the control that the structure of the routines incorporates – ostensive control. This type of control is embedded in how the routine structure is designed. The second one is the control that Interns’ Coordinators and Interns’ Coordinators Assistants exercise – managers’ supervision. This form of planned control is erratic.

Ostensive control. Some of the guards in the galleries, the Rotation Float and Interns’ Coordinators and Interns’ Coordinators Assistants have a walkie talkie that is connected with the others. When rotation starts, the Rotation Float announces that the rotation has started on the walkie talkie. The same when the rotation ends. In this way, everyone knows if rotation has begun at the right time, and also how much time the rotation took.

Art Talks take place in the museum galleries. Interns who are guarding can, therefore, attend the art talks providing support to the Intern in charge of performing the routine. Moreover, the routine of art talks includes a phase of feedback. The routine consists of a phase in which Interns’ Coordinators and/or Interns’ Coordinators Assistants share some comments on how the art talk was with the Intern in charge of it.

Managers' supervision. To avoid mistakes, sometimes Interns' Coordinators Assistants follow rotation at least the first days of the month when New Interns have to perform rotation for the first time. This control is suggested during the training of Assistants and is also recommended by those Interns who have the same role:

“an Interns' Coordinators Assistant told me that this is really important when you are Interns' Coordinators Assistant to kind of look in the future in the sense that if somebody new has to do rotation and have never done it before, you need to understand that it is possible that they would forget something.” (from an interview with an Interns' Coordinators Assistant)

In this way, Interns' Coordinators Assistants make sure that rotation is going in the right way. Controlling the performance allows identifying and correcting mistakes, as reported in Vignette n. 1.

Vignette n. 1: Following, checking, correcting

It is the second day of the month, and the Interns' Coordinators Assistant is following rotation. A New Intern is guarding the first room of temporary exhibition because she/he is giving a break. The agent of the previous room arrives, and the New Intern goes away. The Interns' Coordinators Assistant stops her/him and explains that she/he has to do rotation. The Interns' Coordinators Assistant and the New Intern go in the next room together. The rotation goes on regularly.

Planned control is not the only form of control that influences rotation and art talks. Agents who perform the routines activate a form of peer control that finds the roots in some activities that characterize the context where rotation and art talks are embedded.

How External Activities Trigger Unplanned Control During Rotation and Art Talk Performance

The museum organizes several organizational activities for Interns: the Training Day, the Rotation Float Training, the Old Interns' Tour, the Tour of the new temporary exhibition, and the Interns' Meeting.

The Training Day is the collective training session organized for New Interns. It takes place on the last day of every month, and it lasts 4-5 hours. In this way, New Interns start the first day of work –the first day of the month- already trained. The Training Day aims at providing an overview of the organization, how the Internship will be, and how organizational routines work in the museum.

The Rotation Float Training takes place before the first shift of the Intern who is in charge of being the Rotation Float. To be Rotation Float, Interns are trained individually, or in couple, by Interns' Coordinators or the Interns' Coordinators Assistants. The training takes place in the museum galleries, and it is about all the activities that the Rotation Float has to do: starting and ending the rotation in the galleries, rotating agents in the entrance and the cloakroom, and being responsible for welcoming the visitors that arrive with taxi.

At the beginning of every month, after the closing of the museum, a tour of the permanent collection and/or the temporary exhibition is given by Old Interns to New Interns. This tour is called Old Interns' Tour. The tour follows an order that respects the chronological sequence in which works of art are displayed.

A Tour of the new temporary exhibition is organized whenever the museum opens a new exhibition. The evening before the opening, after the closing of the museum, Interns are required to participate in the tour of the new exhibition. The tour is held mainly by the curator/s.

Finally, once a month, Interns participate in Interns' Meeting: after the closing of the museum, Interns – New Interns and Old Interns - have a meeting with Interns' Coordinators. The Education Department staff usually attends the first part of the meeting.

Besides the formal activities organized by the museum, Interns share information and expectations on routines, informally. These informal conversations and exchanges usually happen in the Interns' Room, where Interns spend time when they are on break.

What happens during formal and informal activities trigger agents to control each other during organizational routines performance through four mechanisms: passing on, suggesting, stating expectations and empowering.

Passing on information. Training Day aims at presenting the activities that New Interns are required to perform, among which rotation and art talks. Interns' Coordinators make a presentation where they describe the structure of rotation and art talks. For rotation, Interns' Coordinators use some slides and the map of the galleries of the museum. They explain the phases that compose rotation and the rules to make it works, the two roles that an Intern can assume in performing the routine – the Rotation Float who starts and ends the rotation and the guard who rotates in the galleries. To contextualize the theoretical description, Interns Coordinators and Interns go in the galleries of the museum, and they make a tour of them, following the rotation path.

During the Training Day, Interns Coordinators give some insights also about the art talks. They explain how many art talks there are during the day, the duration time of every art talk, the structure of how to perform them. They explain that Interns' Coordinators and the Assistants attend the art talks to give feedback on how Interns have performed them.

Interns believe that "*Training Day was not so efficient*" (from an interview with an Intern), because "*it was a lot of information at the beginning*" (from an interview with an Intern), "*It was given to us very fast... And it was just like the schedule, and the rooms, and the*

rotation, and the breaks and it is a lot of things. No. It wasn't clear the first day." (from an interview with an Intern). Training Day was scarcely efficient in providing clear and detailed information about every single activity.

To compensate such lack of detail, the structure of rotation is explained more extendedly during the Rotation Float Training. The Rotation Float is the Intern who starts and ends the rotation in the galleries, rotates agents in the entrance and cloakroom, and is responsible for welcoming the visitors that arrive with taxi. During the Rotation Float Training, New Interns are told about how to start and end the rotation, as well as what happens during it (Vignette n. 2).

Vignette n. 2: Training the Rotation Float

The Interns' Coordinator and The New Interns are in R1. The Interns' Coordinator says that the Rotation Float has to come to the first room of the museum - R1- with the walkie talkie and say to the guard in R1 that the rotation starts. Then, the Rotation Float has to say it on the walkie talkie. So, the I Interns' Coordinator explains that the guard of R1 goes in R2 and so on. When the guard of the last room of the museum arrives in R1, the Rotation Float has to say that the rotation is ended on the walkie talkie.

The context of rotation and the types of art talks change accordingly to the presence of temporary exhibition: the rotation is longer and involves more spaces, and Interns have to give an art talk about the exhibition for visitors once a day. Before the opening of a new temporary exhibition, the curators give a tour of the galleries to Interns. At the end of every tour, Interns' Coordinators explain and show to Interns how the space of the temporary exhibition is divided into areas of guarding and the direction of rotation.

Despite such intense planned training activities, New Interns can still be confused about what they have to do: *“usually I asked Interns ... in most of the cases, Interns have helped me in understanding how the different tasks worked”* (from an interview with an Intern). Remembering the first days as a newcomer, an Intern says: *“When I had free time, and there was someone downstairs (Interns’ Room) doing a break, I asked them....”*. Especially during the first days of the month, Old Interns explain to the new ones how the job works, and how to perform the activities. For example, Old Interns explain to the Rotation Float of the day, how to start and end the rotation, and how to perform the routine of art talk (Vignette n. 3).

Vignette n. 3: What have I to do for the art talk?

In the Interns’ Room, two New Interns are talking. One of them has to do her/his first talk ever, whilst the other one has already done it. The former asks the latter what she/he has to do before the talk. More in particular, the New Intern is confused about the announcement part of the routine. The New Intern asks the other if she/he has to announce her/his talk in every room. The other Intern says that she/he has to do it.

Suggesting how to behave. Interns are asked to follow some behavioural guidelines: they are required to be punctual, to take seriously their job in the museum, and to be professional. Interns’ Coordinators explain the motivations of these requirements. For example, when they ask New Interns to be punctual, they explain what happens if an Intern does not show up in time: the daily schedule needs to be adjusted, and this is not an easy task to do at the last minute, before the museum opening. Moreover, a missing person can provoke an overload of work for the other peers.

During the Training Day, the Education Department staff recommends Interns to enjoy the Internship Program and the city of Venice, to exploit such an opportunity. If these are

general recommendations, during the Training Day, Interns' Coordinators suggest how to behave while performing specific routines. Relative to the rotation, Interns' Coordinators say it is important to keep an eye on what is going on overall. During rotation, Interns are not working alone, but as a team: *"If you are guarding and it passes more than one hour, let us know through walkie talkie because it means that rotation didn't happen"*, an Interns' Coordinator says, during the Training Day. Similar suggestions are given during the Rotation Float Training: *"if the rotation started 15 minutes ago, do not leave your position but say that the rotation is in late on walkie talkie"*, the Assistant suggests during the training. During the Rotation Float Training, the trainer gives suggestions about how to manage the possible overlapping of duties. In this way, New Interns are provided by solutions and by the reasons why the solution is as it is. For example, *"If a taxi arrives during rotation, you have to say to IC on the walkie talkie and IC will take the taxi"*, the Interns' Coordinator suggests.

Given that there is no proper and specific training for art talks, during the Training Day, Interns' Coordinators suggest New Interns going to the art talks of Old Interns. However, this is not satisfactory for New Interns, who are worried about how to do art talks. This is why they ask for suggestions to Old Interns on how to prepare properly the talk and how to keep up the attention of the visitors. For example, Interns advice on how to manage the relationship with visitors during art talks.

Stating expectations. Organizational activities are exploited to convey which are the expectations that the museum has on Interns, and what the Interns should expect about the activities they are going to do. At the end of the Training Day, Interns feel much pressure on them because they feel to be a fundamental cog of a very well-functioning machine.

Interns perceive that the expectations on them are high. They are expected to *"be kind from the first day to the last one"* (Chief of the Front Office Department), they have to take care of visitors while performing their activity, and if they have any troubles, they can always

ask for Interns' Coordinators and the museum staff. The staff trust Interns and the fact that they take the Internship Program seriously.

Expectations are relative to specific routines, too. During the Training Day, Interns' Coordinators state that guarding can be boring, and that rotation is a way to break the activity of guarding and change context. During the Rotation Float Training, sometimes the trainer claims that rotation usually takes 10 minutes, but it can be longer if people go to the restroom or chat. The trainer also makes clear that rotation is only one of the duties of the Rotation Float and that this agent has to manage all the possible overlapping with the other activities. Expectations are shared among Interns too. In the Interns' Room, Interns share their expectations, based on their experience with rotation. For example: "*Some people said <When there is not this guy or that lady, then the rotation is faster because she/he stops to talk>*" (from an interview with an Intern).

Art talks are "*one of the most important things*", as an Interns' Coordinator says during the Training Day. At the end of the month, "*if you will be good in talks, you will be asked to do a tour*", an Interns' Coordinator anticipates to New Interns. Interns are expected to do researches about the artists and the works of art they want to talk about, and they have to provide correct information during art talks. In the Interns' Room, Interns share what to expect: they describe visitors' reactions during art talks, or what could happen to art talks when the museum is particularly crowded.

Empowering. During the Training Day, different organizational actors stress the relevance of the role of Interns: "*at the beginning, they fuel you... saying that you are the best and that you have been chosen by the foundation*" (from an interview with an Intern). In fact, during the Training Days, a member of the Education Department claims that "*the museum is partially run by Interns*", and that Interns are "*the business card of the museum*" (from Education Department staff's speech during Training Day). "*You are representing the PGC*

now” and “*You are the face of the museum*”, Interns’ Coordinators specify to the newcomers. Interns have then the perception of the relevance of the work they are going to do:

“(the director) came to talk with us. That one was obviously a great moment because it is not straightforward that the director of the museum welcomes you. It was useful... psychologically useful because it immediately pushes you perceiving that you are an important part of the museum”. (from an interview with an Intern)

During the Training Day:

“They told us how to behave among us because we are the responsible ones for the others, and we are really closed, so it is like... how to say?... team building. We are a team of Interns. This is what they said. I remember it really well” (From an interview with an Intern)

During the Training Day, Interns’ Coordinators stress that “*we are a team, we work to each other*”. The Training Day infuses in them a high sense of responsibility relative to how to deal with the rules and the activities that they are involved in, because if something goes wrong, the Interns are the responsible ones, as an Interns’ Coordinator says during the Training Day.

The objective of the Education Department staff is that one of empowering Interns: “*for me, that moment has great value not only for the logistics perspective but to make them feel lucky. I am aware that I have chosen them from a pile*” (from an interview with Education Department staff).

During Interns' Meeting, Interns' Coordinators refresh the main pillars of the Program: "*Everyone helps everyone*" (from a speech of the Interns' Coordinator), it is important to "*Act like a big family*" (from a speech of the Interns' Coordinator) and to communicate.

Unplanned Organizational Control During Rotation and Art Talks

As an Intern says, Interns' Coordinators Assistants are not always available to check if the routines are going correctly. Peers can check if they are unfolding properly, even if this is not their primary task and it is not one of their duties. The structure of rotation and art talks contains the action of agents. However, it is not enough. In fact, Interns can make mistakes, or they can intentionally deviate from the ideal structure of the routine. In those cases, the other routines participants can intervene. While performing rotation and art talks, Interns activate four types of unplanned control to maintain routines on track: suggested control, required control, spontaneous control, involuntary control.

Suggested control. The guards of the museum perform the rotation. They know when it is in late, or when something is going wrong. In these cases, some of them react as they have been advised to do: they communicate to Interns' Coordinators or Interns Coordinators Assistants that there is something wrong with the rotation, through the walkie talkies (Vignette n. 4).

Vignette n. 4: "The rotation did not happen yet"

The first rotation in the afternoon is at 3 pm. Today the Rotation Float did not show up at the right time. After a while the Intern in R1, not seeing the Rotation Float and not having a walkie talkie, asks the guard in R3 the walkie talkie. R3 gives her/him the walkie-talkie, and the guard in R1 communicate that the rotation did not take place yet.

Guards stay alert on what is going on in the galleries, applying the suggestions they received. Being directly involved in rotation, they can immediately realize if something is going wrong.

Required control. Interns' Coordinators Assistants are not always available to follow rotation. Sometimes New Interns cannot rely on the presence of Assistants to be sure they are performing the rotation well. So, they ask to the others if, for example, they are in the right room, or if it is the right time to go in the galleries to announce the art talk, or if they can start the art talk even if there are not so many visitors. Under these requests, the other Interns check the correctness of the others' action and make sure that the routine is performed properly.

During art talks, it is not mandatory for guards to listen to the art talk. Their job is that one of controlling visitors' behaviour and not the performance of the Intern who is giving the art talk. For example, guards have to be careful that visitors do not touch works of art and that they do not take pictures with the flash. However, guards can find themselves in the position of controlling the performance of the Intern in charge of the art talk, and they intervene (Vignette n. 5).

Vignette n. 5: "Do you remember in which museum Guernica is?"

There is a temporary exhibition about Picasso. An Intern is in charge of guarding the space of the temporary exhibition when another Intern gives the art talk. The latter refers to the work of art "Guernica" but cannot remember in which museum it is kept. So, the Intern in charge of the talk asks the guarding Intern if she/he can remember. The guarding Intern replies and the art talk can go on.

Spontaneous control. During rotation, peers correct each other even when they have not been advised or asked to do it: "*You are part of a group so, if you're gonna make a mistake*

the group itself corrects the mistake” (from an interview with an Intern). Sometimes New Interns miss the room where to rotate going in another one without recognizing their mistake or asking for a check. The other agents are usually alert on what New Interns do and control their work. If they see a mistake, they adjust it. Just in case there is a mistake or an issue that performing agents cannot or are not able to figure out how to solve, they call for Interns’ Coordinators and the Assistants. According to their position in the museum galleries, guards have a walkie-talkie through which they can communicate with Interns’ Coordinators and the Assistants.

While performing, agents observe each other and evaluate others’ performance (Vignette n. 6). They have the opportunity to monitor others’ work. Interns feel responsible for what they are doing and pretend that the others feel the same sense of responsibility.

Vignette n. 6: This is not breaking time!

The last room of the temporary exhibition has two exit doors. The first one is connected to the museum shop and the garden through which reaching the room where the Rotation Float is waiting to close the rotation. This door is that one mostly used to reach faster the Rotation Float’s position. The second one is connected to the restroom. In the last room of the exhibition, there is an Agent in Outsourcing. A New Intern comes from the previous room to rotate. Therefore, the Agent in Outsourcing leaves her/his position. Instead of going out from the first door, she/he goes out from the second one. The New Intern says: “But this is not breaking time!”.

A similar control happens during art talks. Art talks are managed by the Interns in charge of doing them. New Interns are required to participate in art talks to learn how to do them. Old Interns participate in art talks to provide support, even if it is not mandatory. Old

Interns who attend art talks are not listener only. Their experience allows them to control the situation and provide the necessary support to make the routine be performed in the correct way (Vignette n. 7).

Vignette n. 7: If no one is here, start the art talk

A New Intern has to do an art talk, but no visitors decided to come to the room where the art talk takes place to listen to it. An Old Intern is in the room and suggests to the New Intern to start the art talk anyway. The Old Intern says that people will come to listen to the art talk, once started. The New Intern starts the art talk, and as the Old Intern predicted, visitors stop and come to listen to the art talk. The routine of art talk can then be accomplished.

Involuntary control. The Intern giving an art talk can have some difficulties in managing all that is going on while doing the art talk. This is the case when there are other groups in the room or some visitors who speak really loudly. In these cases, the guard in the room can have an eye on what is happening. Intervening, the guard monitor and control the performance of an art talk. As a consequence, the Intern of the art talk is in the right circumstances to perform the routine.

A MODEL OF HOW CONTROL MANIFESTS DURING ORGANIZATIONAL ROUTINES PERFORMANCE

The findings suggest that the endogenous and exogenous triggers activate dynamics of control during the performance of routines, and show that endogenous planned control and unplanned control are complementary processes. Figure 1 presents how control manifests during the organizational routine performance.

Insert Figure 1 about here

Control mechanisms happen during the performance of the organizational routines. They can be planned – planned control- or they can be unplanned and exercised by and among the routines participants - unplanned control through peer monitoring.

Planned mechanisms of control refer to ostensive control and managers' supervision. The ostensive control indicates that the structure of the routine is designed to have some control mechanisms. Managers' supervision implies that managers can intervene to check if performing agents are enacting the routine correctly, altering its unfolding.

The organizational routine performance is also characterized by mechanisms of peer monitoring enacted by performing agents, in an unplanned way. Four types of unplanned control can characterize the performance of the routine: suggested, required, spontaneous and involuntary control. *Suggested control* refers to the control that agents perform because they have been advised to do it. *Required control* happens when performing agents ask the other peers to check on their work. For example, when agents are not sure about what they have done, they ask their peers for control. *Spontaneous control* refers to the attitude that some agents have in checking the others without any request or suggestion. Finally, agents can be involved in the routine without any intention of controlling, but what they do implies checking the others' job, assuring that the routine unfolds appropriately – *involuntary control*.

Where do these types of unplanned control come from? In other words, how are agents triggered to pursue unplanned control? Organizational routines are embedded in an organizational environment, constituted by other activities that have a formal or informal nature. This set of practices influences performing agents in controlling the other peers during the routine performance, through four mechanisms: *passing on*, *suggesting*, *stating expectations* and *empowering*. These mechanisms work together. As a result, they push agents who perform the routine to monitor the work of their peers, when it is necessary to do that.

Passing on refers to the process of giving information about the routine structure and the rules that are relevant to perform the routine. How information is spread affects the attitude in putting it in practice and in pretending that the others enact it in the same way. *Suggesting* refers to the mechanisms that transfer the attitude through which approaching the job and the specific routines. *Stating expectations* implies providing agents with information on how the organization perceives their role and how their work should be. *Stating expectations* also refers to depicting how organizational routines actually work and not only how they should work. Finally, *empowering* means planting the seed of responsibility for what agents do, and the routines in which they are involved.

The four of these mechanisms work together and push agents to assume not only the role of performers of the task they are assigned in the routine. But agents are pushed to be the controllers of each other and in turns of the unfolding of the routine.

During the routine performance, planned and unplanned controls interact with each other, provoking some internal dynamism. Ostensive control enables performing agents to monitor each other, *creating opportunities for* unplanned control. For example, the tightness of the interdependence among the tasks of a routine can facilitate agents to check on each other's job. In turn, unplanned control reinforces ostensive control – *reinforcing*. Agents exploit the chance that the structure of the routine gives to them: the active participation in maintaining the routine on track. Controlling the peers' work, agents reaffirm the relevance of the ostensive control.

Managers' supervision supports unplanned control – *supporting*- being an example of how a responsible agent should act when involved in the routine performance. In turn, unplanned control can be the source of the activation of managers' supervision through the mechanism of *demanding*. While checking the routine, performing agents can realize that only

the supervision of managers can keep the routine on track, and they can ask for managers' intervention.

DISCUSSION

The research explores how mechanisms of control manifest during organizational routines performance. The empirical case shows that, during organizational routines performance, mechanisms of planned control are complemented by mechanisms of unplanned control. Performing agents monitor each other to maintain the routine on track. The case shows that peer monitoring is triggered by the activities outside the routine performance, through the work of some mechanisms, and by internal dynamics developed by the ostensive control and the managers' supervision.

The analysis of the case results in a model that can be extended to all those organizational settings where there is no time and no resources enough to apply external planned and constant control systems that monitor from outside and top-down the correct unfolding of the routines.

In the following sections, I discuss the main results of the research, and for which reasons the organizational control perspective on organizational routines provides new understanding about them compared to other possible alternative explanations. I conclude stating which are the contributions for the existent literature, the limitations of the study and the future streams of research.

Embeddedness for Organizational Routine Control and Stability

Organizational routines embeddedness can make the routine change over time. The present research focuses on the opposite effect, highlighting how the embeddedness of the routine affects the attitude of performing agents in controlling the routine performance with the consequence of providing stability to it. The relevance of the routine embeddedness confirms that the organizational culture and motivation are crucial for organizational routine

stability (Bertels et al., 2016). However, I do not limit the investigation in identifying the factors that influence the routine maintenance. Instead, I explore the mechanisms through which the systems of control, that populate the environment where the organizational routine takes place, are absorbed and manifested by agents while performing the routine. In this way, I provide empirical evidence of how embeddedness affects organizational routines internal dynamics (Feldman et al., 2016).

Given that performing agents participate in the organizational routine performance, they are more likely to immediately detect possible mistakes and misbehaviours, than other agents, such as managers who are not directly involved in the routine unfolding (LeBaron et al., 2016). However, being in the right place at the right time is not enough. Performing agents should exploit the opportunity of controlling the routine. This means that agents need to recognize this opportunity and understand how to deal with it.

Recognizing and understanding depend on the organizational activities that surround the routine. The intensity of the embeddedness of the routine allows agents to contextualize it in the daily organizational workflow. How the organizational routine unfolds can affect other organizational activities (Kremser & Schreyögg, 2016). As a consequence, a divergence in the routine performance can have consequences in how other activities are carried on. The more performing agents understand this, the more they are prone to control the routine unfolding.

The activities that are external to the routine influence the rules of attention that agents apply while performing it and alters the agents' foresight in capturing what is happening. Therefore the embeddedness crafts agents' mindfulness that is a crucial factor for the stability of the routine (Feldman, 2003).

Moreover, adopting a processual perspective on organizational control (Cardinal et al., 2004), the research shows the unplanned control triggered by external activities does not unfold alone within the internal dynamics of routines. However, it works given the presence of internal

planned control. The two different types of control influence each other during routine performance. The inefficiencies of one are plug by the strengths of the other. In this way, the routine reaches an internal truce and the stability of its performance. The embeddedness collaborates in providing the activation of those control mechanisms that help the planned top-down control to be not inefficient.

Performing Agents as Controllers: Feeling the Responsibility

Organizational routines emerge as a means of coordination: they manage groups of agents that have to accomplish a collective task recurrently (Feldman & Pentland, 2003; Hoffer Gittell, 2002). To do that, organizational routines assign to each agent a specific role as a performer of the routine. Each agent is thus in charge of realizing a task or more. The present investigation shows that, even when the tasks assigned by the routine are not related to control systems, agents rethink their role as performers, adopting also the role of controllers.

The participants of the same routine “develop shared understandings about their status in the organization” (Feldman & Rafaeli, 2002, p. 320), and each of them re-elaborates and confirms their work identity, or “how individuals define themselves at work” (Wrzesniewski & Dutton, 2001, p. 180), while performing the routine (Brown & Lewis, 2011). The case shows that the internal dynamics of the routine involves a process related to identity and provides two understandings about it.

At first, the case suggests that during the routine performance the identity is regulated as a reaction of the stimuli coming from the context where the routine is embedded. The process of identity regulation is “a pervasive and increasingly intentional modality of organizational control” (Alvesson & Willmott, 2002, p. 622). The present research identifies that this process is part of the internal dynamics of organizational routines, given the routines embeddedness in systems of direct and indirect control. For example, the training activities suggest how agents should perceive themselves in the organization, how the organization expects that they work,

and how they are required to approach the organizational routines they are in charge of. The result is that, while performing the routine, agents act according to their understanding about how to implement these stimuli.

Secondly, the research shows that agents do not only confirm their identity. In fact, while performing, agents craft their job (Wrzesniewski & Dutton, 2001): they manipulate the specific role that the routine assigned to them. From performers, they assume the role of controllers too. The exogenous control acts in the routines dynamics empowering agents who feel the sense of responsibility about the routine. For this reason, agents monitor each other. Agents are not only mere executors of the tasks that the routine assigns to them. However, according to the intensity of the process of identity regulation, agents make sense of their being active parts of the routine performance and assume the role of controllers. So doing, they manage the unfolding of the routine determining its stability. Routines stay on track not only because agents think about what they are doing, but also because they exercise control on the others' work.

Alternative Explanations: Why the Analysis of Control Sheds New Light on Organizational Routines Dynamics

Organizational routines literature investigates organizational routines internal dynamics from different perspectives (Feldman et al., 2016), to provide understanding and explanations to how organizational routines change or persist. The present research adopts the lens of organizational control as a means to shed new light on what happens endogenously in the routine to make it stable over time.

However, some alternative explanations could be used to explore the issue of stability. Hereunder, I discuss the contribution of some possible perspectives and I clarify for which reasons the one of organizational control provides a different and relevant point of view.

Organizational culture. Organizational culture affects organizational routines unfolding (Bertels et al., 2016; Howard-Grenville, 2005). Culture is the means through which agents are able to integrate a new routine in their daily work (Bertels et al., 2016), and it is also the way through which new employees are integrated into the performance of the routine (Winter, 2013).

How organizational culture takes the form of routine internal dynamics can be explained by the organizational control perspective. In fact, the content that constitutes the organizational culture is used as a form of control. The processual perspective of control (Cardinal et al., 2004), that is adopted in the present research, provides understandings of the mechanisms that convey organizational culture within the internal dynamics of organizational routines. The model shows how organizational culture becomes part of the endogenous context of the organizational routine.

The learning perspective. The stability of organizational routines is the precondition of learning (Becker & Zirpoli, 2009). The repetition of organizational routines creates the opportunity for a collective and individual learning (e.g. Edmondson et al., 2001). From performance to performance, agents learn what they have to do, experimenting by themselves the actions to perform, or observing what the others do.

The learning perspective shows how it happens that agents repeat actions during the routine performance, and so how it happens that organizational routines stay on track. However, the lens of organizational control explains how a mechanism, such as peer monitoring, even if it is not usually part of the routine, can emerge given some circumstances. In fact, the model shows the origin of the dynamics of control, looking at the external and internal context of organizational routines.

Moreover, the learning perspective has a neutral view of power relations. The organizational control lens brings in the role of power, that such a relevance has in how

organizational routines change and persist (Howard-Grenville, 2005). Becoming controllers, agents exercise their power in shaping the others' work and so how the routine unfolds.

Conclusion

The paper provides three main contributions to the organizational routines literature. At first, the investigation contributes to organizational routines literature explaining how the embeddedness of the organizational routines in the context (Bertels et al., 2016; Howard-Grenville, 2005) affects the organizational routines unfolding. Triggering peers to monitor each other (Loughry & Tosi, 2008), the embeddedness fills the gap that planned and top-down control systems can produce.

Secondly, the research shows a way to maintain routines on track (Schultz, 2008). If the routine design is crucial to reach this objective, also responsabilizing performing agents is an important practice to assure stability to organizational routines. The organizational culture, that such a relevance has for routines unfolding (Bertels et al., 2016; Howard-Grenville, 2005), should be internalized by performing agents. The latter convey it in organizational routines performance assuming the role of controller of the organizational routine.

Finally, the research provides empirical evidence of the complementarity of formal and informal control systems in organizational routines. Previous research shows that formal control systems can be inefficient (Prasad & Prasad, 2000). However, if they act implicitly and if they are combined with informal ones, they can provide stability to organizational routines performance.

Limitations and Future Research

I have observed some mechanisms of control that emerge in organizational routines among all the performing agents who have the same organizational position: they are Intern. Power relations are thus exercised among organizational actors who have the same position in the organization. Nevertheless, I do not explore the phenomenon from a power perspective.

Future research could explore how power relations are established among organizational agents who belong to the same hierarchical position.

The empirical evidence shows how agents assume the role of controller and not only that one of the performer of the organizational routine. Future research could investigate how assuming this adjunctive role influences the perception that agents have relative to the other performing agents, relative to the routine, and relative to their own role within the organization.

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FIGURE 1

The emergence and development of control in organizational routines

The set of formal and informal organizational activities – exogenous control

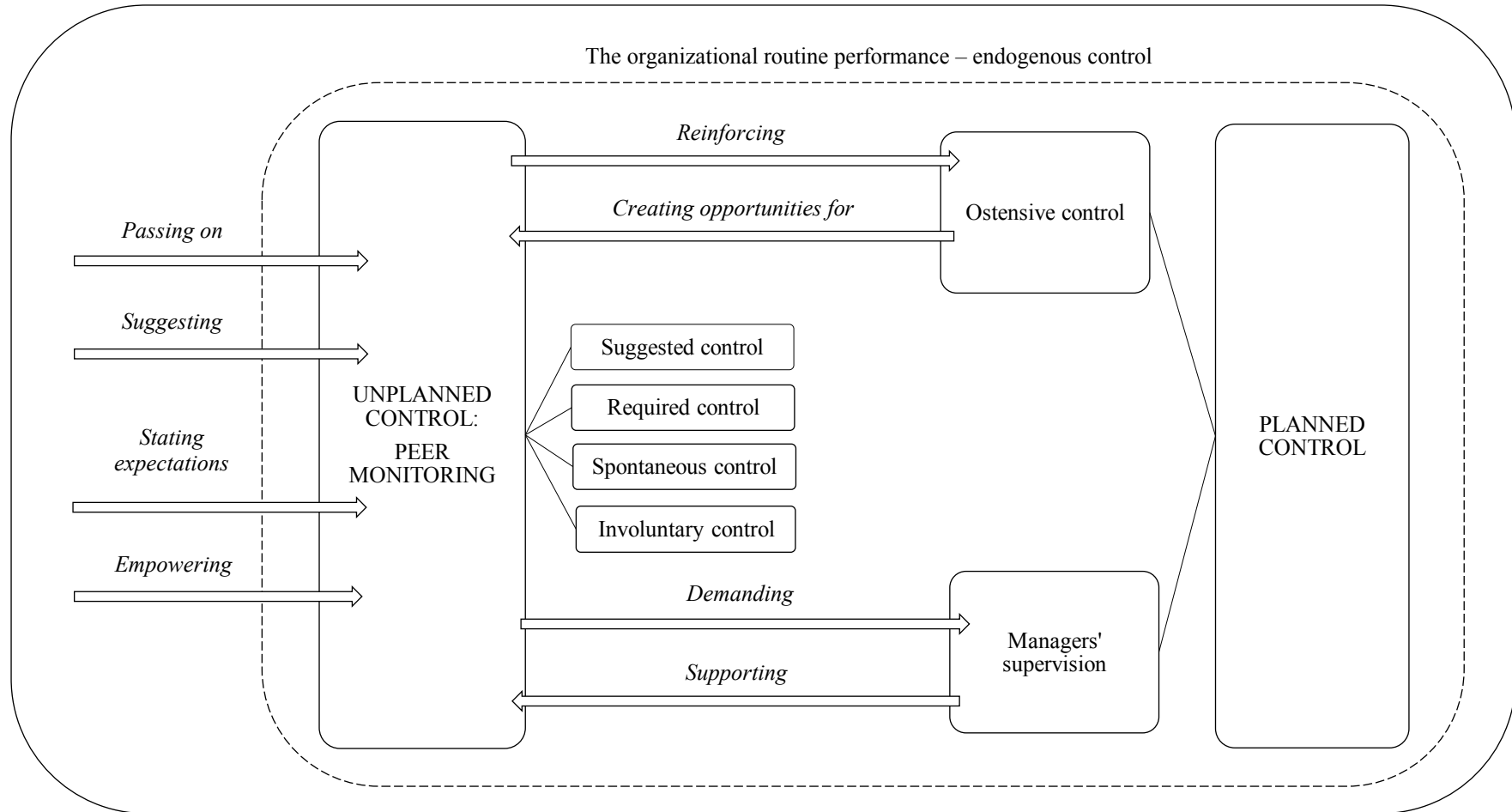


TABLE 1

Data sources and use

Data source	Data Contents	Involved agents	Data collection context	Use in data analysis
Non-participant Observations	<i>Field notes of routine of rotation (244 rotations).</i> Detailed notes on rotation performance. Track of the interactions, communications, engagement of agents.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Agents in Outsourcing	Museum offices, galleries	Reconstructing rotation performance, phases of rotation, involved agents, and the context of action. Identifying the modifications from how the rotation should be. Identifying mechanisms of control.
	<i>Field notes of routine of art talk (209 art talks).</i> Detailed notes on art talks performance. Track of the interactions, communications, participation of agents.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Agents in Outsourcing	Museum galleries	Reconstructing art talks performance, phases of routine, involved agents, and the context of action. Identifying the modifications from how the art talks should be. Identifying mechanisms of control.
	<i>Field notes of Interns' Meeting (4 meetings).</i> Notes on the content of the meetings, the issues that come up, the interactions among different agents, the general mood of the group, the participation.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Education Department Staff	Museum library	Identifying how external practices affect the organizational routines under investigations.
	<i>Field notes of formal trainings (6 Training Days for New Interns, 28 trainings of Rotation Float position, 2 trainings for Agents in Outsourcing).</i> Detailed notes on the activities of trainings of New Interns and new Agents in Outsourcing, with a special focus on the training relative to all the aspects relating with rotation and art talks.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Education Department Staff, Ticket Office Staff, Director	Museum library, museum galleries, museum offices	Identifying how the organizational routines under investigations should be. Identifying how external practices affect the organizational routines under investigations.
	<i>Field notes of Old Interns' tour (2).</i> Observing the meeting organized once a month, where Old Interns introduces the collection to the New Interns.	Interns, Interns' Coordinators Assistants, Interns' Coordinators	Museum galleries	Identifying how external practices affect the organizational routines under investigations.

	<i>Informal conversations.</i> Informal talks between the researcher and Interns, Interns' Coordinators Assistants, Interns' Coordinators, Agents in Outsourcing. Informal talks among Interns, Interns' Coordinators Assistants, Interns' Coordinators, Agents in Outsourcing.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Education Department Staff, Agents in Outsourcing	Museum galleries, museum offices	Capturing the causes and what happens within organizational routines performances. Identification of the origin and the contents of the understandings of organizational routines.
Semi-structured interviews	<i>Semi-structured interviews.</i> (23 with Interns, 9 with Interns' Coordinators Assistants, 3 with Interns' Coordinators, 2 with staff of Education Department). Specific questions on the Internship and its routines.	Interns, Interns' Coordinators Assistants, Interns' Coordinators, Agents in Outsourcing	-	Supporting observations and providing interpretations of organizational routines and the activities external to them.
Artifacts	<i>Manuals</i> (2 manuals for New Interns, 1 manual for New Interns' Coordinators Assistants). Guide for newcomers, where the main tasks, the positions, and the rules of the museum are explained.	-	Museum spaces	Identifying the written rules relative to the routine of rotation and art talks. Triangulation with the interviews.
	<i>Maps</i> (4 maps). Maps of the galleries of the museum, according with the temporal exhibitions.	-	Museum spaces	Identifying the areas of guarding according with the change in exhibitions spaces. Track the paths of rotations. Track of the places where art talks are done.
	<i>Schedules.</i> Daily schedules, where for each agent at work, there is the plan of the day with the relative tasks they are in charge of.	-	Museum spaces	Identifying the agents involved in the rotation and in art talks, daily. Supporting the notes taken during the field work.

TABLE 2

Rotation and art talks: phases, rules, and agents and roles

Organizational routine	Phases	Rules	Agents and roles
<i>Rotation</i>	- Rotation Float goes in room R1 with the walkie talkie	- not going to the restroom during rotation - not taking breaks during rotation (chatting or leaving the museum galleries) - starting the rotation on time	<i>Interns (NI and OI).</i> Rotating guards, Rotation Float <i>Agents in Outsourcing (AO).</i> Rotating guards

	<ul style="list-style-type: none"> - Rotation Float starts the rotation communicating it to the guard in the room and through the walkie talkie - the guard in room R1 goes in room R2 - the guard in room R2 in case leaves tools for guarding to the agent coming from the previous room - so on and so for, for every area of the museum - the guard of the last room goes in room R1 and says to Rotation Float that rotation is over - Rotation Float communicates that rotation is over on walkie talkie - Rotation Float leaves the room 	<ul style="list-style-type: none"> - not leaving a room if it is not guarded by no one 	
<i>Art talks</i>	<ul style="list-style-type: none"> - 10 minutes before the art talk time, the Speaker announces the art talk in the museum galleries - the Speaker goes in the room where the art talk is before the starting hour of the art talk - in time, the Speaker starts the art talk - the Speaker introduces themselves - Or Interns' Coordinators or Interns' Coordinators Assistants attend the art talk - at the end, the Speaker asks if visitors have questions 	<ul style="list-style-type: none"> - starting the art talk on time - announcing the art talk - for each type of art talk, respecting the given duration - asking if there are questions 	<i>Interns (NI and OI). Speakers Interns' Coordinators (IC). Attendants Interns' Coordinators Assistants (AC). Attendants and speakers</i>

TABLE 3

Exogenous control

Activities	Description	When- in the month	When- frequency	Sub-activities	Where	Who
Training Day	Collective training for New Interns.	Last day of the month (4-5 hours)	once a month	<i>Directors' Talk.</i> Welcoming New Interns, talk about Peggy Guggenheim's life, brief tour of the collection explaining works of art.	Museum galleries	Director, NI
				<i>Education Department Talk.</i> Welcoming the New Interns, sharing personal experience, motivating, explaining the responsibility, presenting briefly the activities.	Museum library	Education Department Staff, NI

				<i>General Introduction (I part)</i> . Explaining activities that Interns are in charge of, and the educational/cultural activities that the museum offers to Interns.	Museum library	IC, NI
				<i>Tour of the offices</i> . Tour of the offices of the museum.	Offices	IC, NI
				<i>Tour of the galleries</i> . Tour of museum galleries, explaining each area of guarding.	Museum galleries	IC, NI
				<i>General Introduction (II part)</i> . Explaining the daily schedule and each position.	Museum library	IC, NI
Training Rotation Float	Training only for new intern/s who has/have to be <i>Rotation Float</i> for the first time, during the day.	before the opening of the museum (20-30 minutes)	once for every new intern, or a couple of them	<i>How to start and end rotation</i> . Explaining how to start and end rotation.	Museum galleries or/and museum entrance	IC, NI or AC, NI
				<i>Taxi</i> . Explaining how to be in charge of TAXI and guarding PC2.	Museum galleries or/and museum entrance, cloakroom	IC, NI or AC, NI
				<i>Palazzo</i> . Explaining how to rip the tickets, welcoming visitors, rules for entering in the museum (umbrellas, bags, etc).	Museum entrance	IC, NI or AC, NI
				<i>Cloakroom</i> . Explaining how to manage the cloakroom.	Cloakroom	IC, NI or AC, NI
Training Agents in Outsourcing (AO)	Training for Agents in Outsourcing who have never worked in the museum before.	before the start of the shift	once for every new Agent in Outsourcing	<i>Tour of the galleries</i> . Tour of museum galleries, explaining areas of guarding, explaining rotation.	Museum galleries	IC, AO
Old Interns ' Tour	Tour of the collection made by Old Interns.	one of the first days, after the museum closing	once a month	<i>Presentation Permanent Collection</i> . Presenting an area of the museum, explaining the works of art.	Museum galleries	IC, AC, NI, OI
				<i>Presentation Temporary Exhibition (when there is a temporary exhibition)</i> . Presenting an/more area/s of the temporary exhibitions.	Museum galleries	IC, AC, NI, OI
Interns' Meeting	Meeting for Interns.	after the museum closing	once a month	<i>Talk with Staff of the Education Department</i> . Talking about what happened, happens, will happen in the museum; feedback.	Museum library	Education Department Staff, IC, AC, NI, OI

				<i>Talk among Interns.</i> Sharing suggestions, issues, experience.	Museum library	IC, AC, NI, OI
New Exhibition Tour	In the occasion of the opening of a new temporary exhibition, tour of the exhibition with the curator/s.	after the museum closing	the evening before the opening of the new exhibition	<i>Tour with Curator/s.</i> Tour of the new exhibition (explanation of the concept of the exhibition, and of the art works).	Temporary exhibition spaces	Curator, IC; AC, NI, OI, Museum Staff
				<i>Tour to Show Guarding Areas.</i> Tour of the new exhibition (explanation of the guarding areas in which the exhibition is divided).	Temporary exhibition spaces	IC, AC, NI, OI
Staff Talk		after the museum closing	once/twice/ three times a month	<i>Speech.</i> One or more members of Museum staff share knowledge and experience with Interns.	Museum library or/and temporary exhibition spaces	IC, AC, NI, OI, Museum Staff
Floating	Working time when Interns are not engaged in long continuous activities.	during working hours	every day	-	Interns' Room	Interns, AC, IC
Breaks time	Breaks during working hours.	during working hours	every day	-	Interns' Room	Interns, AC, IC

TABLE 4

Coding how exogenous control triggers peer monitoring

<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Interns' Coordinator explains how rotation works using slides. • <i>Observation.</i> During the Training Day, the Interns' Coordinator explains how to do a talk and makes example of how to perform it. <Hi I'm... an intern, I will give you a talk on... we can meet...> 	Passing on structure	Passing on
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Interns' Coordinator states the rules of behaviour in the museum. "No cell phone while you are working". 	Passing on general rules	
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Interns' Coordinator states the rules for rotation: "Never leave your position" unless another peer arrives to rotate. 	Passing on rules on specific routine	
<ul style="list-style-type: none"> • <i>Observation.</i> It is one of the first day of the month. In the Interns' Room, Interns are talking. A NI asks to OI if they prepare the talks by themselves. OI says yes and explains how to prepare a talk. 	Sharing information	

<ul style="list-style-type: none"> • <i>Interview.</i> “(the director) gave us information about Peggy’s life that I have used then for my talks.” (from an interview with an intern) 		
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Education Department staff says to <spend time besides masterpieces>, <spend time in looking the art and how people react in front of art> 	Suggesting how to approach the job	Suggesting
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Education Department staff says to enjoy the Internship experience. 	Suggesting how to approach the Internship experience	
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Education Department staff says that the job can be boring sometimes. • <i>Observation.</i> During the Rotation Float Training, AC states that the Rotation Float has different duties to accomplish and that the Rotation Float has to manage all of them. 	Stating expectations on the job	Stating expectations
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Education Department staff says that they expect Interns to be on time and ready to work. • <i>Observation.</i> During the Training Day, the Interns’ Coordinators claims that Interns should be punctual in their job, and flexible. • <i>Interview.</i> (telling about what IC said during Training Day) “(IC said) you should feel privileged that you’re here. Ehm... and the rest of that, I just remember feeling quite intimidated by all this.” (from an interview with an intern) 	Stating expectations on agents	
<ul style="list-style-type: none"> • <i>Observation.</i> During the Rotation Float Training, the Interns’ Coordinators Assistant declares that the rotation takes 10 minutes. • <i>Observation.</i> In the Interns’ Room, Interns are talking about how to manage the visitors during talks, and which are their reactions. • <i>Interview.</i> “Some people said: ‘when there is this guard or the other guard the rotation goes slower because they stop talking.’” (from an interview with an intern) 	Stating expectations on the routine	
<ul style="list-style-type: none"> • <i>Observation.</i> During the Training Day, the Interns’ Coordinator says: <If you are guarding and it passes more than one hour let us know through walkie talkie because it means that rotation didn’t happen> 	Triggering behaviour of control	
<ul style="list-style-type: none"> • <i>Observation.</i> During Rotation Float Training, the Interns’ Coordinators Assistant says that rotation is important to give the opportunity to everyone to change room. • <i>Observation.</i> During the Training Day the Interns’ Coordinator explains that “the museum is partially run by Interns.” 	Triggering responsibility	Empowering

<ul style="list-style-type: none">• <i>Interview.</i> “(about the training day) It was like: ok, now you’re Interns, you will have big responsibilities, this is not a game, and you need to be serious about it” (from an interview with an intern)		
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V.

Conclusion

The research explores how agency works in organizational routines, continuously reassessing the equilibrium between stability and change. Three specific research questions are addressed: in organizational routines, (1) how does decision making unfold? (2) how does experience – in its form of experience-as-stock and experience-as-flow- work? (3) how does control manifest?

The first paper proposes a model of how agents make decisions while they are involved in the routine performance. The paper explains that heuristics complement organizational routines. Differently from other studies (e.g. Suarez & Montes, 2019), the analysis shows that organizational routines and heuristics are not mutually exclusive processes. However, the logic that heuristics brings about can avoid the breakdown of an organizational routine. This is particularly relevant for the passing on of organizational routines. It is not only necessary to transfer the organizational routine logic but to train the agents to pursue heuristics processes to make decisions that maintain the integrity of the organizational routine. The paper shows the meaning of the collectivity in organizational routines. Each agent shapes the choice set of the following agent, impeding or enabling agents to perform or not some actions.

The second paper explores experience in organizational routines. Analysing the interaction of experience-as-stock and experience-as-flow, the research shows that agents take over the structure of the organizational routines. In other words, through experience, agents can experiment and understand the possible ways in which the routine can be performed. Agents comprehend how much they can deviate from the ideal structure of the routine. This extension is the *tolerance interval* or how much the organizational routine can be stretched, before breaking down. The experience allows to contextualize the routine from performance

to performance and to explore the limits and possibilities that its structure offers. The empirical evidence shows that mechanisms of control are fundamental to develop the *tolerance interval* and that such a control is exercised by the agents who participate in the routine performance.

Starting from this contribution, the third paper investigates control in organizational routines. The paper shows how control manifests in organizational routines to maintain them on track. The system of organizational activities that surround the routine triggers performing agents in rethinking their role in the routine. From performers, they are pushed to become controllers of the routine unfolding, and to monitor each other. In such a way, managers who have difficulties in having a fine-grained picture of what is happening in every routine performance can rely on performing agents to protect and assure the success of the organizational routine.

REFERENCES

Suarez, F. F., & Montes, J. S. (2019). An Integrative Perspective of Organizational Responses: Routines, Heuristics, and Improvisations in a Mount Everest Expedition. *Organization Science*, 30(3), 573–599.

Estratto per riassunto della tesi di dottorato

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Dottorato: Management

Ciclo: 32

Titolo della tesi :

Walking the tightrope: the balancing work of agency in organizational routines

Abstract:

The thesis explores how agency works in organizational routines. The first paper analyses decision making in organizational routines. A conceptual model shows how the internal dynamics of organizational routines generate uncertainty, information asymmetry and overload. In these conditions, agents adopt heuristics. The second and the third papers are based on an ethnography conducted in a museum characterized by a monthly turnover of employees. The second paper explores how experience works in organizational routines. The interaction of experience-as-stock and experience-as-flow develops through deviating, confronting and elaborating. The result is the tolerance interval - the range of how much the routine can be stretched without collapsing. The third paper explores how control manifests in organizational routines. The activities in which the routine is embedded trigger performing agents to monitor each other, and thus to assume the role of controller.

La tesi esplora come funziona agency nelle routine organizzative. Il primo paper analizza come gli agenti prendono decisioni nella routine. Il modello concettuale mostra come le dinamiche della routine generino incertezza, ed asimmetria e sovraccarico informativi. In queste condizioni l'agente utilizza euristiche. Il secondo e il terzo paper si basano su una ricerca etnografica in un museo caratterizzato dal turnover mensile di chi vi lavora. Il secondo paper indaga come funziona l'esperienza nelle routine. L'interazione fra esperienza come stock e come flusso si sviluppa attraverso i meccanismi di deviazione, confronto e elaborazione. Il risultato è l'intervallo di tolleranza ossia quanto si possa stressare la routine senza che si interrompa. Il terzo paper esplora come il controllo si manifesta durante le routine organizzative. I risultati mostrano che le attività che circondano la routine spingono gli agenti che la performano a monitorarsi e ad assumere il ruolo di controllori.

Firma dello studente

