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DIÓRGENES FALCÃO MAMÉDIO

STRATEGIC IMPROVISATION AND THE SCAFFOLDING PROCESS IN
ACADEMIC INNOVATION

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ACADEMIC INNOVATION**

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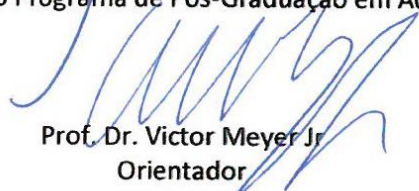
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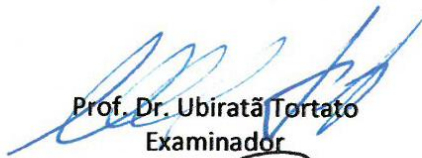
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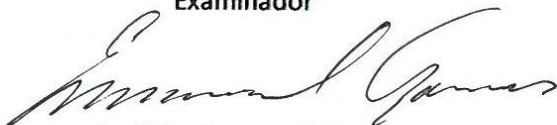
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“Nevertheless, if organizations are actually patterns of nonlinear interaction between people; if small changes could produce widespread major consequences; if local interaction produces emergent global pattern; [...] we do need to rethink the nature of organizations and the roles of managers and leaders in them.”

(Stacey, 2010)

Complexity and Organizational Reality

ABSTRACT

Strategic improvisation is an emerging field of study in strategic management that seeks to find solutions for how organizations to adapt extemporaneously to environmental dynamism. Organizations need to find ways to survive in unpredictable, dynamic and rapidly changing environments. Drawing on ethnographic research, this inductive study investigates, in three main ways, the existence and implications of strategic improvisation. First, it explores the multi-facet of strategic improvisation in an academic innovation project in a higher education institution. The results demonstrate that strategic improvisation emerged in multi-facets manifested within a dynamic context of innovation strategy. These multi-facets were characterized by the process of (i) "scaffolding" of strategy; (ii) "lubricant" of the operational processes; and (iii) "engagement" of innovative practices. Based on this perspective, a conceptual model is proposed. Second, this study proposes the conceptual framework of strategic improvisation in organization studies through an integrative review. The main concepts of organizational improvisation and strategic improvisation were systematically positioned in a symbolic representation. This first conceptual framework about SI is represented by a "strategic improvisation tree", which is integrated by roots, trunk and branches, with managerial implications. Third, this study looks at strategic improvisation as a dynamic capability for managing innovation projects in the academic environment. The results highlight multiple SI dimensions, such as adaptive, articulation, innovation and experience building capabilities, in the context of the innovation project. The main contribution of this study lies in the proposed concept of strategic improvisation and how it occurs in its most different facets in dynamic organizations.

Keywords: Strategic improvisation. Academic innovation. Scaffolding strategy. Higher Education. Dynamic Organizations. Integrative review. Dynamic capability.

RESUMO

A improvisação estratégica é um campo de estudo emergente em gestão estratégica que busca encontrar soluções para como as organizações se adaptam extemporaneamente ao dinamismo ambiental. As organizações precisam encontrar maneiras de sobreviver em ambientes imprevisíveis, dinâmicos e que mudam rapidamente. Com base na pesquisa etnográfica, este estudo indutivo investiga, de três maneiras principais, a existência e as implicações da improvisação estratégica. Primeiro, explora as múltiplas facetas da improvisação estratégica em um projeto de inovação acadêmica em uma instituição de ensino superior. Os resultados demonstram que a improvisação estratégica surgiu em múltiplas facetas, manifestada dentro de um contexto dinâmico da estratégia de inovação. Essas múltiplas facetas foram caracterizadas pelo processo de (i) "andaimes" da estratégia; (ii) "lubrificante" dos processos operacionais; e (iii) "engajamento" de práticas inovadoras. Com base nessa perspectiva, é proposto um modelo conceitual. Segundo, este estudo propõe a estrutura conceitual da improvisação estratégica nos estudos organizacionais por meio de uma revisão integrativa. Os principais conceitos de improvisação organizacional e improvisação estratégica foram sistematicamente posicionados em uma representação simbólica. Essa primeira estrutura conceitual sobre a IS é representada por uma "árvore de improvisação estratégica", integrada por raízes, tronco e galhos, com implicações gerenciais. Terceiro, este estudo considera a improvisação estratégica como uma capacidade dinâmica para gerenciar projetos de inovação no ambiente acadêmico. Os resultados destacam múltiplas dimensões de IS, como capacidade de adaptação, articulação, inovação e construção de experiência, no contexto do projeto de inovação. A principal contribuição deste estudo reside no conceito proposto de improvisação estratégica e como ocorre nas suas mais diferentes facetas nas organizações dinâmicas.

Palavras-chave: Improvisação estratégica. Inovação acadêmica. Andaimes da Estratégia. Ensino superior. Organizações dinâmicas. Revisão integrativa. Capacidade dinâmica.

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1 INTRODUCTION

Higher education institutions (HEIs) are recognized for their complexity nature. In order to survive they have been challenged to adapt to today's changing environment to fulfill their mission. The ability to improvise reveals to be an essential competency of contemporary academic management. In a rapidly changing environment, strategic improvisation (SI) is valuable by exploring opportunities out of the conventional fields, thus creating new ideas and initiatives. In essence, the need for organizational performance in this 21st century requires organizations to be flexible, dynamic, adaptable and responsive to environmental forces or demands. In this context, strategic improvisation becomes essential for HEIs performance.

Strategic improvisation plays an important role for the survival and development of today's organizations. These organizations, whose complexity stems from the nature and process of their services, are subjected to failures, unpredictability, ambiguities and irregularities with implications for their performance. The complexity of organizations and the rapidly changing dynamic environment require new skills and competencies compared to traditional management approaches.

This study aimed to explore the strategic improvisation that occurred in its most different manifestations, more specifically in the academic innovation project of an HEI. The gap this research seeks to fill is based on the three main approaches: (i) how strategic improvisation unfolds in the implementation of an academic innovation project in an HEI; (ii) what is the conceptual framework of strategic improvisation in organization studies; and, (iii) how to explore strategic improvisation as a dynamic capability in the management of innovation projects in academic environment. The main contribution of these approaches led to the concept of strategic improvisation and how it occurs in its most different facets in dynamic organizations.

Theoretical gap of strategic improvisation research has been found through a literature review and a suggestion of future research in leading qualified journals to identify demands in the field of improvisation. Recent call for papers from the European Management Review Journal was based on the theme 'Strategic Improvisation and Turbulent Emerging Markets' acknowledging the scarcity and interest in this field of research. The research gap confirmed the originality of the research, such as the need for empirical studies that demonstrate manifestations of strategic improvisation. Thus, this thesis is theoretically justified by the theorization of the field of strategic improvisation, still unexplored, applied mainly to the management of innovation projects in academic environment.

The epistemological basis of this research is supported by an interpretative approach, which aims to enrich the study, considering the diversity of actors and the complex nature of the environment. Epistemology is fundamental in the reflection of the construction of knowledge, such as in the choices of a scientific research. This philosophical value of knowledge can be considered as multiform, complex and plural. It focuses on establishing whether knowledge will be recorded by the subject with previously organized data, or whether the subject will actively intervene in the knowledge of the objects studied. In this study, the outcome is the creation of the intense interaction process between the researcher and subject. Knowledge is understood as a complex production and not as a linear understanding of the reality of a phenomena. In this regard, the ethnographic approach was adopted in the inductive logic for knowledge construction and the integrative review as a systematic literature review.

The organization focus of this study is a non-profit private university located in southern Brazil. It consists of four campuses with approximately 25,000 students and recognized for its tradition. Guided by ethical principles, its mission is to develop and disseminate knowledge and culture, and to promote the integral and permanent formation of citizens and professionals committed to life and the progress of society. This organization was selected for analysis by the opportunity of the author to experience the development of an academic innovative project for three years, with the perspective of strategic improvisation. In addition, this organization was considered by University Ranking as a pioneer in academic innovation. The university's anonymity has been preserved.

Since 2014, this university has been undergoing a process of self-assessment and significant changes are taking place, which has placed a critical eye on its management experience, processes, resources and, especially, its academic innovation project. However, major investments in human, technical, technological, infrastructure and managerial qualifications were required to promote the expected innovations. To meet these demands for innovation, the University sought external funding to foster the initiative of the Academic Innovation Program, obtaining it through the Fund for Innovation in Education and Research. The academic innovation project started in October 2016 and was completed in October 2019.

The selection of this particular project was due to the strategic relevance to the University to respond to the demand for academic innovation, focusing on student learning to solve real and complex problems of 21st century challenges. In addition, the opportunity for effective participation of the researcher from the beginning to the end of this project. The University's Innovation Program focus of this study was funded for 5 million dollars over

three years, divided into six implementation phases, and was segmented into three major projects: methodological innovation in teaching, multidimensional course evaluation, and intelligent management of courses. This project involved the entire university, including all areas of knowledge within the academic, administrative and operational management sectors.

The originality of this study is highlighted by following aspects: first of all, the integrative review developed in this thesis evidenced the SI approach completely original in academic management, given the scarcity of research in this area, especially empirical studies. Subsequently, the term "scaffolding" of strategy is unique to strategic management and empirically evidenced in this research as one of the main contributions to this field of study. Next, the multi-facets of SI are the original result of this inductive study, particularly its manifestation simultaneously in strategy, operational processes and innovative practices. Moreover, the conceptual model presented in this thesis called "strategic improvisation tree" emerged by this research makes up the originality of this research. By presenting SI as a dynamic capability in HEI innovation projects, especially in an empirical study, it reveals this original research. Finally, ethnography and integrative review method, applied to the theme of strategic improvisation, also reinforce strong originality.

This study structure was organized following the international model recognized and practiced abroad. Particularly inspired by the European model, more specifically in Portugal, which the researcher developed the PhD Sandwich Program at the NOVA School of Business and Economics. The purpose of this model is to present a complete structure of results, discussions and conclusions with theoretical and methodological basis for each article developed in this research.

The structure of this thesis consists of four main parts. The first refers to the introduction, which explains the research theme, problem and research gap, theoretical and practical justifications, epistemological and ontological basis, organization under study, originality and main contributions. The second presents the composition of the thesis formed by three papers that structure the thesis, being two empirical studies and one of integrative literature review. The papers follow the approach: (i) Multi-facets of strategic improvisation: The scaffold of strategy; (ii) Strategic improvisation: A conceptual framework; and, (iii) Dynamic capability of strategic improvisation: new competences developed in the innovation project of a higher education institution. The third part consists of the conclusion, which addresses the compilation of thesis concepts, managerial implications and suggestions for future research. Finally the fourth presents the appendix, with the script of interviews and participant observation, which highlights the main points analyzed.

2 THESIS COMPOSITION

2.1 PAPER 01 – MULTI-FACETS OF STRATEGIC IMPROVISATION

Multi-facets of Strategic Improvisation: The Scaffold of Strategy

Abstract

Strategic improvisation is an emerging field of study in strategic management that deals with finding solutions to how organizations extemporaneously adapt to environmental dynamism. Drawing on the context of complex organizations, this inductive study investigates the existence and implications of multifaceted strategic improvisation in the process of academic innovation in a higher education institution. The results demonstrated that strategic improvisation emerged in multi-facets manifested within a dynamic context of innovation strategy. These multi-facets were characterized by the process of (i) "scaffolding" of strategy; (ii) "lubricant" of the operational processes; and (iii) "engagement" of innovative practices. Based on this perspective, a conceptual model is proposed of multiple facets of strategic improvisation. The model reinforces the role of strategic improvisation in finding solutions to innovative initiatives. The absence of one of these facets was characterized as "SI effect". The main contribution of this study lies in the proposed concept of strategic improvisation and how it occurs in its most different facets in dynamic organizations.

Keywords: strategic improvisation; scaffolding of strategy; academic innovation; complex adaptive systems; higher education.

Introduction

Higher education institutions (HEIs), recognized for their complexity nature, need to adapt to today's changing environment in order to survive. The ability to improvise reveals to be an essential competency of an academic contemporary management, as a new way to respond to changes (Leone, 2010). It involves developing new skills and competences more appropriate to the constantly changing reality of modern organizations. In a rapidly changing environment, strategic improvisation (SI) is valuable by exploring opportunities out of the conventional fields, thus creating new ideas and initiatives (Moorman and Miner, 1998b; Fisher and Amabile, 2009; MacNab and Worthley, 2012). In essence, the need for organizational performance in this 21st century requires organizations to be flexible, dynamic, adaptable and responsive to environmental forces or demands. Thus, strategic improvisation becomes essential for HEIs performance.

Strategic improvisation is an emerging field of study in the strategic management literature that addresses how organizations adapt to the dynamism of complex environments (Hadida et al., 2014; Bakar et al., 2015b). In this regard, SI is perceived as a new paradigm for fast learning, adaptation and strategic renewal (Moorman and Miner, 1998b; Vera and Crossan, 2005). The ability to improvise will not only solve the problem but also give to managers the expertise to capitalize on opportunities that will move the organisations forward, as a result of their novel strategic decisions (Crossan and Hurst, 2003; Hmieleski et al., 2013). In this study, improvisation is adopted as a strategic factor (Perry, 1991), both for the progress of the strategy and for operational practice (Smets et al., 2012) in response to unplanned actions and unforeseen events, as the new strategy on the fly (Cunha, Miner and Antonacopolou, 2017).

Although this rich descriptive literature supports the possibility that SI may occur, the improvisation that influences strategy is difficult to examine. In this regard, this inductive and empirical study explores the potential existence and implications of strategic improvisation during the implementation process of academic innovation in an HEI. This study leads to strategic improvisation beyond and seeks further clarification in its conceptualization, based on empirical data. For this, it distils the multiple facets of SI in strategy, operational processes and innovative practices evidenced in the same context in real-time.

This study aimed to explore the strategic improvisation that occurred in its most different manifestations, in which its structural and functional aspects were processed. More specifically, it seeks to answer "How does strategic improvisation unfold in the implementation of an academic innovation project in an HEI?" The organization under

analysis was in a non-profit private university, located in southern Brazil. Composed of four campuses, it has approximately 25,000 students and it is recognized for its tradition. Currently, the university faces challenges such as improving learning, better professional student performance and innovation in academic methods. This makes academic management of strategic importance. Ethnography was carried out for three years at this university. The inductive empirical approach was significant for building the SI experience.

The main contribution of this study is demonstrated by the diversity of manifestations of strategic improvisation, evidenced as multifaceted in a dynamic context. It analyzes the layers of improvisation and the implications of the absence of one of these three facets in the strategy, the operational processes and the innovative practices. Strategic improvisation was highlighted as the "scaffolding" of strategy, "lubricant" of operational processes and "engagement" of innovative practices. Reinforces the role of SI outcomes in managing innovation projects. A multi-faceted model of strategic improvisation and its manifestations has been proposed.

Theoretical Foundation

Strategic Improvisation in Dynamic Organizations

Strategic improvisation (SI) is an emerging field of study in strategic management literature that addresses how organizations adapt to the dynamism of complex environments (Hadida et al., 2014; Bakar et al., 2015b). Today, the speed of development, innovation, and pressure for immediate response to a dynamic context have increased exponentially. In this sense, SI is presented as a new paradigm for rapid learning, adaptation and strategic renewal (Moorman and Miner, 1998b; Vera and Crossan, 2005). Managers' ability to improvise will not only solve the problem but will also enable them to capitalize on the opportunities that will lead organizations forward as a result of their new strategic decisions (Hmieleski et al., 2013).

Therefore, changes in bureaucratic processes are necessary to ensure effective implementation of the strategy throughout the organization. SI has been attributed to the opportunity to explore new ideas as a result of dynamic context and unexpected events (Moorman and Miner, 1998b; MacNab and Worthley, 2012). Organizations adapt through interaction and response rather than through analysis and reflection (Cunha and Cunha, 2006). In this sense, the strategy can be viewed as a process of co-evolution between organizations and their environments, with strategic improvisation referring to opportunity-guided competitive strategies (Perry, 1991). At this point, a minimal structure (Kamoche and Cunha,

2001) is one of the key elements of configuration and a necessary condition for strategic improvisation (Cunha and Cunha, 2006).

Additionally, improvisation has been perceived as strategic when planning and execution of new actions converge over time and execution (Miner, Bassoff and Moorman, 2001; Cunha, Miner and Antonacopolou, 2017). Thus, it is possible to perform an unplanned action and design the new strategy in real-time (Baker, Miner and Eesley, 2003; Cunha, Miner and Antonacopolou, 2017). It has been identified as one of how organizations can cope with the rapid environmental changes because it allows flexibility, adaptability and innovation (Kamoche, Cunha and Cunha, 2003; Vera and Crossan, 2005). In this regard, Cunha and Cunha (2006) propose that the fast-changing environments lead to higher levels of strategic improvisation, and strategic improvisation leads to a faster response to changes in the competitive environment as well as enhancing performance (Moorman and Miner, 1998b; Akgun and Lynn, 2002; Vera and Crossan, 2005; Hmieleski and Corbett, 2008).

When an organization's environment is interpreted as a turbulent flow of opportunities, the capability of rapidly reorganizing to capture an opportunity may be a valuable one. In this sense, SI may be considered a dynamic capability by which executives create, reconfigure and integrate resource bundles (Teece et al., 1997; Eisenhardt and Martin, 2000). In a strategic improvisational mode, organizations move quickly to explore an unexpected opportunity or to neutralize a disturbing threat (Cunha and Cunha, 2006). In this regard, SI is related to complex adaptive systems (CAS) through the nonlinearity (Tsoukas, 2005), unpredictability and self-organization, established by several schemas that are constantly modified, shaping their adaptive capacity (Stacey, 1996; McDaniel and Drieber, 2005). Co-evolution occurs in a CAS with constant tension and balance (McDaniel, 2007) which SI manifests itself as a potential mechanism in the process of political articulation and management of multidisciplinary.

Despite this rich and interesting theoretical approach, we lack a refined theory and evidence on precisely when these varied approaches to strategic improvisation occur and when they have value. Strategic improvisation research lacks deep probes into their current occurrence and their impact at the strategic and operational level in the same dynamic context. This approach offers a potential tool for generating organizational features as strategic flexibility, agility, and adaptability. In essence, this study proposed as a concept of strategic improvisation as a process of challenging the existing or conventional ways of organizing to exploit an opportunity or deal with an unexpected or unplanned situation to support the strategy as it unfolds. It does not necessarily mean replacing the initial plan, although

improvisation can be recognized as a substitute for strategy (Weick, 1993a). But this approach seeks better strategic results, coming from the process of convergence between plan and execution (Moorman and Miner, 1998), understood as simultaneous actions or initiatives.

Methodology

Ethnography was adopted (Van Maanen, 2011; Spradley, 2016) since this approach is suitable for analysing phenomena in which the observation of events and actions occur naturally (Creswell and Poth, 2017). The inductive empirical approach of this study was significant for building on the experience of improvisation as strategic during the time it was lived by social actors. The ethnographic procedural nature was used as follows: (i) field research; (ii) understanding the world with a sensemaking orientation (sensework); and (iii) articulation and presentation of these understandings (textwork) (Ybema et al., 2009; Creswell and Poth, 2017).

This study aimed to explore "How does strategic improvisation unfold in the implementation of an academic innovation project in an HEI?". The organization under study is a non-profit private university, located in the south of Brazil, composed of four campuses with approximately 25,000 students, and recognized by its tradition. This organization was selected for analysis by the opportunity of the author to experience the development of an academic innovative project for three years, with the perspective of strategic improvisation. In addition, this organization was considered by some University Rankings as a pioneer in academic innovation. The university's anonymity has been preserved.

The author worked as director of the project planning area of the organization under analysis in the first 18 months of the project. On the one hand, the researcher's role was strategic in experiencing the phenomenon of improvisation at the time it occurred. This approach became a great differential. Otherwise, it would be very limited to identify strategic improvisation in practice without deep design knowledge of the intended innovation strategy. On the other hand, methodological rigour were preserved. For this, most of the academic interviewed did not have direct contact with the researcher during the administrative position, not influencing the answers. Besides, the researcher's perspective was refined by validating the perception of the interviewees and the head of the project. The documents of the meetings were held by others involved in the project. The results were validated by the Head of the Project. This validation provided the analysis of the real experience and significantly reduced the potential bias of the researcher.

The selection of this particular project is due to the strategic relevance to the university as demand for academic innovation, focusing on student learning to solve real and complex problems of 21st century challenges. The University's Innovation Program in this study was funded for 5 million dollars over three years, divided into six implementation phases, and was segmented into three major projects: methodological innovation in teaching, multidimensional course evaluation, and intelligent management of courses. This project involved the entire university, including all areas of knowledge within the academic sector, administrative and operational management.

Data Collection

Fifty-one ethnographic interviews (Spradley, 2016) aimed to identify the context of the managers' perception in the implementation of the strategy, analyzing perceived improvisations, unexpected decisions and actions, emergency practices and surprises during the project management. The selection of the interviewees was made by non-probabilistic or purposive sampling, considering the interest in the members directly involved in the implementation of the project under analysis. It was used ethnographic interview through guided experience questions to collect data, once this type of technique "asks informants for any experience they have had in some particular environment" (Spradley, 2016, p. 88). Interviews were recorded and transcribed. The interviews lasted from 30 minutes to one hour and 40 minutes, and 592 pages of transcription.

The profile of the 51 interviewees was segmented by seven directors, twelve top-level managers of organizational units, eleven technical specialists and twenty-one professors responsible for the academic implementation of the project. The profile of this sample was qualified due to the composition of those responsible for the implementation of the project and the results of the academic innovation. The number of interviews is justified because it covered the main actors responsible for the strategy under analysis. This included the Head of the project, top-level managers of all operationalization and technical support, managers of infrastructure, technology and academic units, architecture professionals, workshop instructor professors, and academic program managers. The study reached saturation of the data from the 48th interview, addressing the same perceptions of the interviewees about the phenomenon and significantly reducing new experiences.

In parallel to the interviews, active participant observation of the researcher took place for three years, from October 2016 to October 2019. The author participated in weekly department meetings, technical team meetings and participation in the seminars. More

specifically, the researcher had effective participation in 57 project committee meetings, fourteen seminars of academic formation in active methodologies, monthly infrastructure committee, two international events for all university professors focusing on project engagement. In addition, an informal meeting called "Coffee and Debate" for discussion of best academic practices and possible adjustments, such as an informal meeting of the university were performed. The observations were compiled in a field protocol, in which the notes were recorded, as well as the main perceptions and constitute the "written register of what the investigator hears, sees, experiences and thinks during collection and reflection about the data in a qualitative study" (Bogdan and Biklen, 2010, p. 150).

Documental analysis also constituted the data set, along with the researcher's field diary, notes, personal feelings, ideas, impressions or insights of life organizational evidenced. Contextual data were gathered in the form of documents related to the organization's strategy process, detailed in Table 1. These data were allowed a preunderstanding of the specific context against which the account of each particular interviewee and participant observation of researcher could be considered.

[Insert Table 1 about here]

Analytical Procedure

The data were analysed using narrative analysis (Eriksson and Kovalainen, 2015) and document analysis techniques (Creswell and Poth, 2017). The narrative analysis took a practical approach (Langley and Abdallah, 2011) because it allowed a better understanding of how the structural contours of organizational life unfold over time through people's interactions (Jarzabkowski, 2005; Feldman and Orlikowski, 2011). The data went through the process of codifying fragments (Saldaña, 2013) of relevant texts or citations that are interrelated and identified with the improvisation practices under analysis.

Fifty-nine classified codes were established in the content analysis, which emerged from the data, extracted from transcribed interviews, field diary and documentation. These codes were relevant to better specify the literature on strategic improvisation, respecting the specificities of the organizational context under analysis. In the pre-analysis, 210 codes were generated, with more than 500 quotations. From the refinement of the data, 108 codes were compiled and then reorganized to 71 codes. With a deeper analysis of the data, 59 consistent codes were reached. These 59 codes were structured from 397 quotations, representing an index of 6.73 citations per code, and grouped into 27 themes. These themes

were interpreted to construct the findings and are presented in Figure 2 of the Findings section. The data analysis activities, strategies, and outcomes are presented in Table 2, below.

[Insert Table 2 about here]

The classification of quotations related to the phenomenon of strategic improvisation were segmented by facet and related themes: (i) 'scaffolding' of the strategy with 35.01% (n=139) of which are 'Improvisation in strategy structuring' (n=51), 'Improvisation as an experience building process' (n=46), and 'Improvisation as a means of finding solutions' (n=42); (ii) "lubricant" of the operational processes with 41.56% (n=165) distributed in 'Improvisation as alignment in political articulation' (n=60), 'Improvisation in the engagement of multidisciplinary' (n=60), 'Improvisation as a trigger for process dynamics' (n=31), and 'Improvisation practice in disruptive thinking' (n=14); (iii) engagement for innovative practices with 23.42% (n=93) segmented into 'Innovation in academic practices' (n=27), and 'Engagement in the innovation process' (n=66).

This explicit detailing of the methodological steps assisted in the accomplishment of the "confrontation" or alignment between the exposed literature and the empirical results obtained in this research. This study provided a dense description of the social context and the subjects under analysis, taking into account the concept of transferability (Merriam, 2009). It is important to create conditions for researchers to follow the same methodological steps to "rebuild" or "replicate" what has been done in different research scenarios, although generalization is not possible. The transferability refers to the possibility that the results obtained in a given context in qualitative research can be applied in another context.

Findings

Higher education institutions (HEIs), recognized for their complexity nature, diversified interest group and professional entities, need to be creative and innovative to survive. Academic managers play the role of guardian and promoter of the academic formation of its students. In this context, these institutions need to adapt to elements such as dynamics, uncertainty and unpredictability and unforeseen events. Rethinking and deepening the path of inevitable innovation is a paradigm shift in the field of higher education. A constantly changing reality demands professionals aligned with the present challenges. Higher education institutions need to be in line with the dynamic change, which everyone needs to reinvent and respond to those challenges. It is about "*inspiring those involved to rethink their role in*

innovating the teaching-learning process”, said the president of the university under analysis. *“We are in a century that demands more complex skills from professionals. Social needs require an education that prepares creative and efficient professionals capable of solving complex problems”*, added the provost.

Concern about the future led one of the most traditional universities in southern Brazil to see significant changes in academic management. *“The world tends to get more and more complex. Gradually we are receiving demands that prove that isolated initiatives will not be the way”*, said the university career coordinator. The strategy was emerged from an Academic Innovation Program, with the implementation of changes in academic practices in the active learning project.

From conception to the end of the three-year innovation project, SI played a key role in the process of shifting from the traditional academic approach to innovative practices. The concept of SI emerged from this empirical analysis and revealed multi-facets and different manifestations in the same context. SI promoted a response not only to unexpected or problem-solving situations but also as a way of sustaining strategy, especially through multidisciplinary, divergence, lack of process fluidity and engagement, as highlighted in this study. In this regard, improvisation was seen as strategic when it promoted: (i) "scaffolding" of the strategy; (ii) "lubricant" of operational processes; and (iii) "engagement" of innovative practices, as will be presented in the research findings. Data were organized based on the methodology of Corley and Gioia (2004) detailed in Figure 1.

[Insert Figure 1 about here]

The First Facet of SI: “Scaffolding” of the Strategy

The dimensions that based the “scaffolding” of strategy facet were ‘improvisation in strategy structuring’, ‘improvisation as an experience building process’, and improvisation as a means of finding solutions’. Significant statements with the profile of respondents that support the proposed concept of the 1st facet of SI are described in Table 3.

[Insert Table 3 about here]

The dimension of improvisation in strategy structuring was marked by elements such as self-organization and immediate responses in the conception of action as it unfolded. It was noticed that *“the scope was being built while the project progressed”*, pointed out by the

academic planning manager. An IT coordinator explained, “*we were shaping, honing, interpreting exactly what the stakeholders wanted in the process*”. The just-in-time strategy was noticed in the interpretation and immediate action of stakeholders to ensure the innovation process through adaptations and flexibility. There was a stated intention of possible adaptations and improvisations as being strategic for the project through autonomy (participant observation). The goal remained unchanged, but the way the project was implemented went through many improvisations that ensured that the expected result was achieved, which was confirmed in the document analysis. The structuring strategy was highlighted by the academic coordinator:

I had to intervene in the process to mediate. As was happening... it was structured. Not necessarily that it was previously planned. But this was happening during the project.

The practice of “managerial mediation” has demonstrated a scaffolding process to ensure that the strategy follows the plan, focusing on improving results. The way of performing the improvisation practices happened as a support of the strategy and not for lack of planning. As the planning manager pointed out, “*there is no innovation without improvisation. Improvisation is inherent in innovation*”. This means that the innovation strategy had as its structure the scaffolding process in the project implementation.

Improvisation as an experienced building process promoted learning during strategy in practice. In this dimension, one of the most significant elements was learning dynamics in improvisation practices. In this regard, many managers recognized failures as learning and the improvisation as a new competence developed. “*We know how to deal with an innovation project for the experience we had with this project*”, said an expert planning technician. A perspective of an engineering professor demonstrated, “*you need some experience not to be afraid of it. Do not be afraid of improvisation, because it happens. In class, you have to improvise*”. This process of building experience and learning was completely spontaneous, appointed by the infrastructure manager:

Human behaviour is not predictable. So, it has to take place for improvisation, for implementation. So that it happens experimentally and effectively as written in the project. I think the project gives me the guidelines, the goals. I think this must be clear, but the way it happens is completely spontaneous.

The importance of learning in structuring strategy was related to the need to disseminate the practices learned during project implementation to promote changes in organizational processes. It was stated, “*Learning was organizational because we had a breakthrough after this project. We need to improve planning, taking bureaucracies, the processes have to be*

more fluid, we are making a big move in this direction, change processes to let flow", infrastructure director. However, it was criticized by project manager *"I don't think there was any organizational learning. Because many times the academic innovation project was seen as one more thing I have to do, one more thing I have to deliver. I didn't get much of that interface, you know?"*. This process was perceived by the participant observation, whose demands got in the line of the current rigid process and the managers' mentality remained bureaucratic.

Improvisation as a means of finding solutions was highlighted as a guarantee of innovation through solutions that emerged along the way.

So I think improvisation helped it because you are entering a maze. You will have to get out from there on the other side. And somehow you will have to do this. Then some information was said at the beginning of the maze, there were voices there. It's almost had some instructions at some specific points in this maze, workshop instructor.

In the scenario of unpredictability and dynamic context of HEI, improvisation was considered by managers as a way to achieve the strategic objective of the project, from a spontaneous and experimental process. Operational director reported, *"maybe it would be experiential anyway"*. The goal was outlined, but the way to achieve the results was a building. The Plan was established from professors training, technological definition, architectural project and definition of operational processes. All these demands were met during the implementation of the strategy, adequate to the reality of constant change and dynamism of the organization.

The Second Facet of SI: "Lubricant" of the operational processes

The dimensions that based the "lubricant" of the operational processes facet were 'improvisation in the engagement of multidisciplinaryity', 'improvisation as alignment in political articulation', 'improvisation as a trigger for process dynamics', and 'improvisation practice in disruptive thinking'. Significant statements with the profile of respondents that support the proposed concept of the 2nd facet of SI are described in Table 4.

Improvisation as alignment in the political articulation was a crucial aspect for the strategy through process fluidity. The project implementation was nonlinear, loosely articulated, adaptive and flexible, and at the same time innovative. For each phase of the project, there was a practice of rethinking, adapting and evolving. The importance of the project committee was evidenced in the participant observation from all the changes that took place weekly in this meeting to improve the project results and attend to situations of

unpredictability and urgencies. The academic planning manager highlighted the committee approach *"the way we deal with the doubts"*.

Based on the analysis of the minutes and the participation in the committee, it was possible to experience situations that required political articulation such as: discussions of infrastructure additives regarding unforeseen items, opportunities that arose throughout the project, strong negotiation of deadlines, alignment between the interconnected tasks of organizational units and new demands of the equipment. In addition, also negotiation with the technical service managers to absorb new demands with no increasing headcount took place. There was alignment between several different suppliers with intervention in the same classroom, with significant impact on interrelated activities. No one had prior know-how or standard solutions to solve these unexpected situations. The project committee, considered by the interviewees as an improvisation practice that involved articulation and political alignment in unexpected situations, was strategic as a way to guarantee the result, stated in Table 4.

[Insert Table 4 about here]

The practice of strategic improvisation was the way of aligning disagreements among suppliers, technical area and establishing fluidity in the negotiations. Strategic improvisation as an alignment of technical elements also proved to be fundamental practices for managers to deal with such complexity. *"It has some level of improvisation needed. [...] There is no way, improvisation has to get in the way"*, stated the infrastructure manager. The improvisation in the multidisciplinary engagement was observed by the researcher mainly in the moments of discussion, alignment, conflict and commitment. The difficulty presented by the respondents was the individualism of each corporate area in limiting the practices of their responsibility without regard to the inevitable impacts on other demands. This effect was called the *"Domino Effect"* by the academic planning officer:

We depended on another area, that area depended on someone else, who was executing the project, the builder, or the supplier. So it was a dependent area in another area, so it was a domino effect.

Strategic improvisations as alignments produced a follow-up routine, as stated by the infrastructure coordinator, *"constantly we had to do on-site verifications, we had to monitor changes"*. These practices emerged fluidity of operational processes, based on the knowledge of the institutional process and the articulation of human relations, discovered as a trigger for process review. SI addressed the group's efficiency in meeting project deadlines and macro

strategy on an experimental way. The project coordinator pointed out, “*innovation projects do not have a ‘path of stones’, you have to find the way to where you're going to walk. Go testing*”. SI was evidenced as a new experience building process, which allows immediate decisions, in front of the unexpected, but which can support strategic memory. These memories were enhanced from unexpected situations, adapted according to the new context and incorporated into the routine.

In this context, improvisation was considered as a lubricating potential of institutional processes, as a way to bring efficiency to the operation. The supply manager of the organization had to improvise in order to be more efficient with the “anticipation strategic improvisation”, considered by this interviewee as critical to making the process more fluid.

With the establishment of the project committee, I got involved and I was also taking my team's technical expert to the discussion. If the discussion were infrastructure, the infrastructure buyer; IT alignment and equipment definition, the IT buyer. I was leading the technical expert who would lead this process in the area of supply. This practice happened spontaneously so that the buyer would begin to become familiar with the demand for the project that would lead. So it was even an initiative to anticipate demand, pointed out by the supply manager.

Anticipation strategic improvisation was also highlighted by IT specialist, “*the technicians were getting ready. We do not have the habit of working with anticipation. They were learning as the demands went on*”. This practice was effective in aligning the operation between organizational units and was therefore incorporated into the other phases of the project.

The Third Facet of SI: “Engagement” for innovative practices

The practices of engagement were built with the academic professionals through routines of convincing, construction of ideology, politics, training, workshops that had a high investment of time and resource. The dimensions that based the “engagement” for innovative practices facet were ‘inovativity in academic practices’, and ‘engagement in the innovation process’. Significant statements with the profile of respondents that support the proposed concept of the 3rd facet of SI are described in Table 5.

[Insert Table 5 about here]

Academic innovation was evident in the rethinking process and the self-organization of the teacher's teaching plan and practice. The innovative practices were the process of

building reflection and self-criticism. SI sustained the process of knowledge construction, based on the unexpected response of the students during classes. As an academic innovation in the HEI analyzed, an engineering professor pointed out,

The student is not intended to have encyclopedic knowledge. He has to handle content to relate concepts. In future education, the student will have to solve things that unaware. So how do you prepare a student to work with this uncertain future?

Reflective practice from what was planned and re-organized was an innovation in the academic field. Learning from the emerging need to record the experience of teaching practice performed by professors. It is a change from the profile of the professor to a mediator and engaging students intellectually. The focus was on student learning outcomes and strategic improvisation played a key role in achieving this goal. The main role in academic innovativeness was to sustain disruptive thinking through practices that improved strategy. Among these practices are the mix of active learning methods, re-organized from the application of the plan in the classroom, not previously planned, but with significant results. These methods were applied spontaneously, experimentally and by trial and error. A professor of health area stated, *“we apply it intuitively, but I am not aware if I am applying a particular method. We are appropriating and adapting according to the lived experience”*.

Strategic improvisation was identified in the innovation process engagement as "rearrangements" of teams, aligning objectives and tasks of each specific area. Project awareness was unplanned, however, driven by the need for prioritization of the project by organizational units, it was achieved through informal negotiation, political articulation and constant communication, viewed as SI practices. These practices were characterized as SI because they were intentional, unplanned, focused on improving project performance to achieve the main strategy. *“Engagement is superior to rigidity and slowness of processes and makes delivery, innovation and improvisation happen because there is a great willingness to deliver”*, technical specialist of planning.

In order to promote professors engagement and awareness in the process of academic innovation, the *“professors must assume that he or she is in a context of constant change. It is a maturing process”* stated a professor. *“Improvisation? That's what we do most!”*, stated a professor of educational technologies. It is an approach related to the resolution. In addition to solving problems, SI has demonstrated its focus on generating solutions from opportunities, improvements and new features. In this regard, it was stated by the architecture coordinator:

Improvising is very close to human nature because you can draw a plan, you can set goals, you can set deadlines, but you are working with a group of people who will

respond differently to motivation. Each person will have a different work dynamic from each other. So flexing is critical. Having margins to navigate this project are important factors. And often intuit what is best for each one. So I think that in human management, in particular, planning always involves this improvisation variable.

SI had a strong performance in engagement practices of professors, students and managers in the innovation process. Evidence has shown that the Empowerment aspect of stakeholders is an element that influences the innovation process. For this, *"the student must be part of the process and have decision-making power. This is innovative practice"*, education professor noted. *"Sometimes the process is so uniform and so bureaucratic that making it human is the engagement we needed to have that fluidity in the process"*, pointed out the planning expert.

Informal coffee and debate meetings were held to discuss active learning as a way to create a "community of practices" based on peer collaboration. These meetings discussed the challenges of teamwork, students engagement, creative teaching, optimizing classroom time, teaching-learning, learning disabilities and students resilience. This action was considered an improvisation practice by one of those responsible for organizing the Meeting, and a way to promote professors engagement.

Strategic improvisation was a way to innovate from the engagement of students in various academic methods. Innovation is in the trajectory of the student with a focus on learning. This is confirmed by a professor of architecture, *"improvisation leads to this innovation. You blend methodologies with student gain in mind. It is a spontaneous process, of expected initiatives, with immediate responses, based on the student's reality"*.

To promote student engagement, an humanities school professor states the need for *"symbiosis between structure, student and professor. The challenge has been to connect students with the internal network, not the external networks"*. In challenging student engagement, some skills were highlighted by educational managers as critical in this process: Ability to make connections, self-directed learning activities, participation in interactive, collaborative assignments, create a sense of social learning and community building, behavioural and social skills, technical skills (Know-what and know-how). The autonomy of students made all the difference in this process. *"The difference is empowering but the student does not feel abandoned. Provide possibilities. Use autonomy with support"* says a professor of business school.

Engagement in the innovation process has been identified in the assessment and continuous development, promoting agility through autonomy and flexibility. In many circumstances, this process of academic innovation was trial and error. *"Hits and errors have*

made improving”, stated a professor of engineering area. It has been *“new to working with error”*, he adds. These statements reinforce learning through experience by trial and error (Davies, 2014), which are also characteristics of complex and innovative projects. *“Stumbles happen and how dealing with these stumbles can determine the results”*, says the program coordinator. A professor at the coffee meeting said *“try and evaluate what you need to adapt”* as inherent in the change process. Strategic improvisation supported the class activities and even improved what was in the plan. It promoted student engagement and professors felt part of the innovation process as an academic strategy.

Discussion

Multi-facets of strategic improvisation proposed in this study were structured on three main arguments. First, strategy scaffolding is the main attribute of Strategic Improvisation. In this sense, the need for strategic improvisation in minimally structured projects, particularly for academic innovation, is latent. Second, strategic improvisation brings as an integrative ability to promote process fluidity. Therefore, it is argued that this SI facet was positively related to performance. Results in complex and dynamic contexts are linked to the fluidity of operational processes (Smets et al., 2012). Third, SI promotes engagement in innovation strategy. The relationship between individuals and organizational units demands strong engagement in strategic practice, given the possible impacts on the organization. These arguments are detailed below.

Strategy scaffolding is the main attribute of SI

Structuring the strategy as it unfolds creates a strategy-building experience (Samra-Fredericks, 2003) considering one of the key attributes of the SI as the "scaffold" of strategy. *Scaffolding* is a term that denotes the placement of structures to temporarily support workers while something is in the process of construction. In the field of strategic management, this study presents the improvisation practices as a scaffolding of the strategy, which is gradually removed when it is no longer needed, as these practices are incorporated into the routine. The scaffolding process of strategy allows the resolution of a complex problem, especially in contexts of constant mutation, unexpected and surprise (Jarzabkowski and Kaplan, 2014).

The "scaffold" essentially consists of the support of the strategy, materialized in this study as the academic innovation project, through strategic practices of improvisation. It is assumed, however, that the process of implementing innovation can potentially achieve more meaningful results than a conclusion of the initial strategic plan. SI practices were adopted to

ensure strategy, consisting of a spontaneous and flexible process for making immediate decisions focused on project performance. The strategy was shaped during the process of implementing an innovation project in an HEI. For this, scaffolding played a key role in this process. These scaffolds give teams a wider set of parameters in which to operate, encouraging experimentation, creativity (Fisher and Amabile, 2009; Harvey, 2014; Perry-Smith and Mannucci, 2017) to innovation. Individuals and teams can craft their goals to improve their outcomes and innovations at their level.

Strategic improvisation manifests itself in the mechanisms of flexibility in bureaucratic processes in dynamic contexts. It is strategic because it focuses on supporting the strategy as it unfolds, as it does not have all the detail in the plan. It is improvisation because it provides flexibility, creativity and spontaneity based on minimal structures. People are allowed and encouraged to create their solutions, which improve strategy or deal with unexpected situations along the way. They can also create in micro-activity (Westley, 1990; Whittington, 2003) to achieve the strategy. Strategic management in this context is better represented by individual actions and micro strategies than by formal practices prescribed in planning (Meyer, Pascucci and Meyer, 2018).

Higher education institutions, in their efforts to adapt to a context of uncertainties and surprises, adopt several managerial actions, of emergent characters, such as the practices of improvisation. These improvisations do not refer to the absence of planning, seeing that they are practices that foster the support to minimal structures, focused on ensuring the plan in dynamic and unpredictable contexts. Dynamic, unpredictable and non-linear environments characterize the field of organizational complexity, marked by adaptations and changes. Nonlinearity is the rule, linearity is the exception (Tsoukas, 2005).

Academic management, characterized as complex, professional and loosely articulated, experienced the manifestation of SI in situations under the pressure of time and with a sense of urgency. Improvisation practices emerge simultaneously with the plan and execution, and also in response to the plan's lack of detail. The improvisations practiced by managers, in general, were essential to face difficulties and unexpected events, or even to promote adaptation and flexibility. Some prerequisites for improvisation are highlighted, such as minimum structures, flexibility and managerial competence. Aspects of tensions and conflicts between actors and project managers were evidenced in the bureaucratic processes of the organizational units and the lack of systemic vision of the project as a whole, which required strong articulation and political alignment. The project coordinator stated, *"each area took care of its specific part, without regard to the possible impacts on other areas. It had no*

involvement in the process as a whole". These tensions are typical in a changing context, as pointed out by Meyer, Pascucci and Meyer (2018).

SI in academic management was compared with a "*Maze Running*", emerged from the findings of this study. This SI metaphor is related to a changing environment as actions unfold, consisting of the plurality of agents, informal leadership, and interest group. In this context there is strong interaction between agents and the leadership plays a key role of mediator in the process of dealing with the unexpected through SI practices. There are limits in a maze. Even in innovation projects, there are budget, time or technical limits. Guidelines and guidance are available but without further details. This fits into a spontaneous process of strategy as it unfolds. The result is strategy implementation. This metaphor is related to strategy scaffolding, as these practices structure unexpected events, unplanned actions, and opportunities to support the strategy. What on one hand boost creative potential, autonomy and innovation, on the other planning and execution converge in real-time. SI practices are highlighted, not only at the time of action but also in making the plan's decision. Decisions are made immediately in response to unexpected situations for better performance and innovative initiative.

Strategic improvisation as an integrative ability to promote process fluidity

SI is an ability to handle a dynamic "*Managerial Toolbox*" to lubricate operational processes. Political articulation, multidisciplinary management and disruptive thinking to find solutions in unexpected or unplanned situations are vital to this facet of SI. In the context of a complex adaptive system composed of a diversity of agents, choosing the best management tool for unforeseen situations becomes strategic. In this sense, SI has developed a dynamic ability in teams to prepare a "toolbox" to adapt to uncertain contexts. SI, as a learning process, has developed the ability to improvise, as reported by an infrastructure director, "*improvisation always happens, but the team has more capacity, more tool, as the toolbox increases. Because when you have an improvisation, you also know how to do it*". Negotiation and renegotiation processes were also evidenced as a strategic competence guided by discussions, alignments and political alignments.

SI is a situational interpretation within a given framework (Falkheimer and Sandberg, 2018). For this authors, SI can only occur when three parts are combined: a clear framework (composition), a professional interpretation (interpretation) and a situational adaptation based on given possibilities and conditions (improvisation). Minimum knowledge of the organization's strategies is required for a successful SI practice. Strategic improvisation is not

about going outside the box, but about using the box you have (Falkheimer and Sandberg, 2018). For this, there is a sense of direction to align between stakeholders and the opportunities that are utilized.

Organizational routines establish connections among people as they engage together in these routines, and thus serve as settings for developing understandings about “both what needs to be done in a specific instance of performing a routine and about the goals of the organization” (Feldman and Rafaeli, 2002, p. 309). Some routines may flow from time pressures; others often reflect formalized decision-making procedures. Since they do not involve deliberate search (Feldman and Pentland, 2003), they are settings that cognitive processes prevail.

Ambiguities, disagreements, and unexpected situations arise from the lack of engagement and sharing of strategy as it unfolds. This will require collaborative and flexible structures that reflect the integration of organizational units and take into account all stakeholders. The importance of mechanisms that promote alignment and engagement becomes critical. The compartmentalization of organizational units and individualism of departments have significant impacts on strategic outcomes. In this regard, the “*domino effect*” arises from the lack of stakeholder engagement, limited alignment and individualization of organizational units.

The “*domino effect*” is evident when organisational processes are tightly coupled. Thus, the delay of one activity impacts all the others, in several departments. Decisions may be directly related to implications of distinct organizational units. Technical, operational, strategic, and academic units interrelate and impact each other. In project management, this involves budget, deadline, scope, quality and the innovation process itself. Risks may arise from these actions and reactions, such as not taking responsibility for a particular task justified by the non-delivery of the previous by the related area. In this context, negotiation, flexibility, adaptation and improvisation are strategic to ensure the achievement of the expected results. It is shared management, not necessarily collaborative.

The absence of SI at one of the organizational levels results in inefficient performance in the dynamic context of innovation such as the HEI under study. The different manifestations of SI and their effects are shown in Table 6.

[Insert Table 6 about here]

Table 6 shows that when SI is not present in the strategy, it impacts on several actions in the operation and practice of innovation. When a process begins with SI, but in operation, this practice is not evident, it also influences innovative practices, although the strategy has elements of improvisation. However, with SI is absent from innovative practices, but in strategy and operation presented aspects of improvisation, this directly influences the results. It is noticed that the "*domino effect*" always impacts the result, despite interventions at the beginning or in the middle of the strategy process.

Changing the paradigm through disruptive thinking, learning (McDaniel, 2007), creativity (Stacey, 1996; Perry-Smith and Mannucci, 2017) and cooperation among agents (Stacey, Griffin and Shawn, 2000), came to be in preparing for the unexpected. It is a paradox of "organizing for unexpected". The practice provided the academic professional with the expertise to know how to improvise and unfold the strategy. SI was evidenced in the application of group activities as a way to generate engagement and productivity. SI was not manifested exclusively to meet demands that the planning was not enough, instead, it was part of the evolutionary process itself, of creation, adaptation and new results. Strategic improvisation has connected the whole process.

Strategic Improvisation promotes engagement in innovation strategy

Innovation has been considered one of the major aspirations of contemporary organizations in times of changes. It can be defined as any new installation, organizational system, process, problem, project, product or service selection (Dougherty, 2006). For O'Sullivan and Dooley (2009), innovation is more than creation, it also includes exploration towards the benefit, as a way of adding value to organizations. In short, an innovation project is a complex adaptive system that contains network adaptive agents so that the environment of each adaptive agent includes other agents of the system, being able to adjust its behaviour to the conditions of the environment and its performance. The new vision is that of an evolutionary pluralism. According to this pluralism, fragmentation is inevitable, but it is necessary to learn to work with this fragmentation instead of forcing a "commensurate unification".

Defining the key part of the new development of improvisation in innovation has been considered an optional mode of organizational innovation (Eisenhardt and Tabrizi, 1995). It is an important reason for the development of innovation through a process of change to meet a competitive and dynamic environment (Bettis and Hitt, 1995). In this approach, the managerial mindset emphasizes strategic flexibility and cooperation, dynamic efficiency and the process of learning and unlearning. With this, improvisation is a mindset to guide the

organizational processes (Weick, 1998).

Organizations are under extreme pressure for innovation and the development of disruptive thinking. Through improvisation and simple rules (Davis and Eisenhardt, 2005), organizational members become empowered to make decisions, and strategy takes the form of strategic decision making at many organizational levels, in the context of an enabling organizational design (Cunha and Cunha, 2006). From a complex adaptive systems perspective, strategy results come from the interactions of many agents at various levels (Ritter, Wilkinson and Johnston, 2004), following simple rules (Anderson, 1999). In this sense, the strategic process emerges from the minimally structured interaction.

The advancement and diffusion of innovations in academic management are social processes that unfold as people develop and exchange social ideas, values, interests, and norms. Managing organizations in an increasingly complex and disruptive environment require flexibility, adaptability, and dynamism. In this approach, the importance of engaging human relations with innovation actions is added. SI supports this engagement aspect, promoting interaction between agents through negotiation and informal communication, with awareness actions, ensuring the achievement of the innovation strategy.

In the context of rapidly evolving, the ability to anticipate future trends and the necessary knowledge and skills need to adapt becomes even more critical for all stakeholders (Schwab, 2016). Managerial demand will be higher on the ability to handle complex problems, social and system skills, and less on specific technical skills. Academic managers were unprepared to deal with the surprising and unexpected issues that arose during the implementation of the innovation project. Given the growing dynamics of organizations, processes of change and innovation require and emphasize the ability of academic managers to continually adapt and learn new skills and approaches within a variety of contexts. It is a tension to the adaptive forces of a complex system (Schwab, 2016). In this context, managers' ability to continually learn, adapt and challenge their own conceptual and operational models can distinguish leadership from organizational strategy outcomes.

Therefore, it reinforces the concept of SI proposed in this study, also highlighted by the facet of engagement of innovative practices. The engagement has a key role in the process of exploiting an opportunity or deal with unexpected or unplanned situations as innovation strategy as it unfolds. In this study, communities of practice, persuasion and awareness actions, reflective practices based on their experimentation, team rearrangements, alignment between tasks and objectives of each specific corporate area, informal discussion meetings,

demonstrated strategic improvisations that promoted engagement in the innovative practices proposed by the organization.

Community of practices cannot be recognised in isolation, but as part of a larger framework, a social system that encompasses the relationship between a person and the world, a social person inserted in a social world (Wenger, 2003; Hatch, 2018). This relationship integrates both systems between individual and social participation, which are somehow entangled, leading to what is identified as a social learning system (Wenger, 2003; McDaniel, 2007). Practices in this context are seen as ideas, tools, frameworks, information, language and stories shared by individual members (Wenger et al., 2002). All of this necessarily affects individuals, groups and the shared practices, knowledge, learning, negotiations and outcomes derived from this process in a particular setting.

Hatch (2018, p. 205) summarizes the community of practice concept as a place where individuals are “doing something separately together”. In this respect, a distinct contribution to the concept of community of practice was made by Pyrko, Dörfler and Eden (2016) focusing on the idea of “thinking together”, which is a key element that “essentially brings a community of practice to life” (2016, p. 389). Academic organizations can be seen as a typical context of community of practices. Behind the concept of “thinking together” of academic units is mutual engagement, an essential element of social structures such as communities of practice, meaning how and what people do together when they share practice (Pyrko, Dörfler and Eden, 2016).

Multi-facet Model of Strategic Improvisation

Improvisation is strategic when this process supported the strategy from design to execution, and conception to completion. Operational processes have become fluid and aligned, focusing on delivery. The innovative practices gained creativity, adaptations of the plan according to the reality of the academic practices and mainly engagement of the multidisciplinary spheres of the human relations at the university. Theoretically, it is provided with an inductively derived strategic improvisation conceptual model that couples with strategy, operation and innovative practices achieve the innovation strategy goal. The multifaceted strategic improvisation model is presented in Figure 2.

[Insert Figure 2 about here]

Although an academic innovation project was analyzed in this study, the model formulated is not limited to this context. It promotes a rich and consistent reflection in several dynamic and complex organizations, with potential for convergence between plan and improvisation. In the case of academic organizations, this approach has been quite a challenge to managers. Dealing with surprise events and unexpected situations in a flexible, spontaneous and effective manner has been a major challenge for academic managers. The aspects that provided SI practices are presented by the input of “scaffolding”, “lubricant” and “engagement”. The multiple facets of SI manifesting in a dynamic context encompass strategy, operation, and innovative practices. The results demonstrated that the elements of self-organization and adaptation, fluidity and alignment, learning and transformation were produced as evidence of SI practices. The result of this process is academic innovation as the achievement of strategy. Although considered a HEI as an object of analysis, this model can be applied in many organizations, with demands of dynamic strategic practices.

Conclusion

The multi-facets of strategic improvisation were evidenced in different aspects in the complex context of an HEI. Specifically, from the beginning of thinking the strategy, permeating the entire operation, until the achievement of the results of the innovative practices. The dynamism of HEIs showed a fertile field for the manifestation of the SI phenomenon at all levels of the organization. SI not only supported the strategy, but also the operation and innovative practices, through factors such as negotiations, communication ideas flow and leadership. In the fluidity of operational processes, the SI has a fundamental role in the management of multidisciplinary, in articulating the political dimension and in finding solutions. It is an integrative ability to promote process fluidity that influences innovation performance.

The theoretical contribution of this study to strategic management focuses on the multi-faceted concept of SI and especially on the term "scaffolding" of strategy in contexts of constant change, unexpected and surprise (Jarzabkowski and Kaplan, 2014). This "scaffolding" essentially consists of supporting strategy, materialized in this study as a project of academic innovation through SI practices. Improvisation practices were adopted to ensure strategy, since the planning and execution process, besides converging in time and space, was constituted by a spontaneous, flexible and creative process. However, the multifaceted set of SI plays a key role in achieving better results for the innovation strategy.

For the improvisation field, in addition to the multifaceted concept of SI, the organizational improvisation literature is corroborated with the construct 'engagement' in addition to the familiar constructs: 'intuition, bricolage, learning and innovation' (Miner, Bassoff and Moorman, 2001; Crossan and Sorrenti, 2005; Cunha, 2005; O'Sullivan and Dooley, 2009; Hadida et al. 2014). The engagement construct is a crucial aspect to consider as it permeates organizational, collective and individual improvisation as an important mechanism of improvisation practices. This aspect demonstrated in this empirical study has great potential for stakeholders involved in the strategic process.

The minimal structure approach (Kamoche and Cunha, 2001) is corroborated with the "multi-facets" of SI for manifestation in the same context and simultaneously. For this, the plan and execution converged in time, demonstrating that the role of minimal structures can be represented simultaneously at various organizational levels. This approach deserves further research. In addition to these structures, it is necessary to consider the "scaffolding" of strategy to develop the strategic process from the minimum structures. Both approaches complement each other and have a distinct role. From minimal structures, strategy scaffolds assume their role in ensuring that the strategy is achieved as it unfolds.

Regarding complexity theory, the SI approach is a fundamental construct of complex adaptive systems (Stacey, 1995). It is the key element in facing dynamic, unexpected and unpredictable contexts. Forecasting is inexact in a CAS (Tsoukas and Hatch, 2001; Stacey, 2011) because elements change, behaviour emerges and activities and relationships are nonlinear. Therefore, SI is efficient in dealing with the flexibility, adaptation and multidisciplinary of such systems. Elements such as self-organization, nonlinearity, simple rules and coevolution, characteristic of CAS, can be dealt with in strategic improvisation practices to sustain strategy as it unfolds and co-evolves in the system. SI was the answer in "organized for the unexpected" in the CAS analyzed in this study.

A concrete contribution to the theory of university management under construction (Keller, 1983; Meyer and Lopes, 2015) is the importance of managing strategic processes with flexibility, adaptation and engagement. Planning and execution converge in time on many projects in the university context. Promoting strategic improvisation practices, based on minimal structures, especially when it involves academic innovation projects, is crucial. Multidisciplinary management, coupled with political articulation and the search for solutions makes the role of academic managers even more challenging. The process of "scaffolding" strategy of SI can promote interesting results without the need to fight for rigid and

bureaucratic operational processes to ensure control. For this, minimally structured projects, particularly for academic innovation, is latent.

In essence, this study proposes the concept of strategic improvisation as a process of challenging the existing or conventional ways of organizing to exploit an opportunity or deal with unexpected or unplanned situations as “scaffolding” strategy as it unfolds. It does not necessarily mean replacing the initial plan, but getting better results by sustaining the strategy throughout the process. This approach seeks better strategic results, arising from the process of convergence between plan and execution simultaneously.

It is evidenced throughout this study the importance of undertaking inductive empirical research to advance the conceptualisation and theorizing strategic improvisation. It is recognised that the theoretical progress of SI approach will be made through inductive and empirical research. It is important to highlight that the steps of this study were iterative, in which empirical findings cause a return to conceptualizations, and inductive research feeds future deductive studies. Given their novelty, these concepts and their articulation are now needed to be the object of more empirical research. There is, indeed, some previous research, but further development of the conceptual nature of these concepts and the practical implications for managers and organizations are necessary.

Suggestions for future research

Explaining different manifestations of strategic improvisation in different contexts may represent a fertile field of research. Researchers can use empirical studies of improvisation as a lens to further explore strategic improvisation as a dynamic capability. Based on empirical research on strategic improvisation, new theoretical windows can be offered. Many organizations have not developed plans for adaptations or renewals; Rapid environmental changes have led to many organizational failures. In this context, it may be interesting to deepen the study of strategic improvisation as "scaffolding" strategy in a turbulent context of change. This theme may be relevant for maintaining a competitive advantage in globalized, complex and dynamic environments.

Research questions that may be explored in future studies include: To what extent can the SI model be applied in a different organizational context than the academic one? Can SI manifest itself in different levels and degrees for each facet proposed? Is there a difference between areas of knowledge in academic management in applying the SI approach? How can SI be considered a dynamic capability in complex contexts?

References

- Akgun, A.E. and Lynn, G.S. (2002). New product development team improvisation and speed-to-market: An extended model. *Eur. J. Innovation Management*, 5(3), 117-129.
- Anderson, P. (1999). Complexity theory and organization Science. *Organization Science*, 10(3), 216-32.
- Bakar, H.A., Mahmood, R. and Ismail, N.N.H.N. (2015b). Fostering small and medium enterprises through entrepreneurial orientation and strategic improvisation. *Mediterranean Journal of Social Sciences*, 6(4), 481-487.
- Baker, T., Miner, A.S. and Eesley, D.T. (2003). Improvising Firms: Bricolage, Account Giving and Improvisational Competencies in the Founding Process. *Research Policy*, 32(2), 255-276.
- Bettis, R.A. and Hitt, M.A. (1995). The new competitive landscape. *Strategic Management Journal*, 16(S1), 7-19.
- Bogdan, R.C. and Biklen, S.K. (2010). *Investigação qualitativa em educação*. Portugal: Porto Editora.
- Corley, K.G. and Gioia, D.A. (2004). Identity ambiguity and change in the wake of a corporate spin-off. *Administrative Science Quarterly*, 49(2), 173-208.
- Creswell, J.W. and Poth, C.N. (2017). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. 4th Edition, SAGE Publications, Inc., Thousand Oaks.
- Crossan, M. and Hurst, D. (2003). *Strategic renewal as improvisation: Reconciling the tension between exploration and exploitation*. Working paper. University of Western Ontario, Richard Ivey Business School.
- Crossan, M. and Sorrenti, M. (2005). *Making sense of improvisation*. In: KAMOCHE, H.N.; CUNHA M.P.; CUNHA, J.V. *Organization Improvisation*. London and New York, Routledge.
- Cunha, M.P. (2005). Adopting or adapting? The tension between local and international mindsets in Portuguese management. *Journal of World Business*, 40(2), 188-202.
- Cunha, M.P. and Cunha, J.V. (2006). Towards a complexity theory of strategy. *Management Decision*, 44(7), 839-850.
- Davies, A. (2014). Innovation and Project Management, in: M. Dodgson, D. M. Gann and N. Phillips (eds.): *The Oxford Handbook of Innovation Management*. Oxford: Oxford University Press.
- Davis, J. and Eisenhardt, K.M. (2005). *Complexity, market dynamism, and the strategy of simple rules*. Working paper, Stanford University, Stanford, CA.

- Dougherty, D. (2006). *Organizing for innovation in the 21st century*. The Sage handbook of organization studies, 2, 598-617.
- Eisenhardt, K.M. and Martin, J.A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10-11), 1105-1121.
- Eisenhardt, K.M. and Tabrizi, B.N. (1995). Accelerating adaptive processes: Product innovation in the global computer industry. *Administrative science quarterly*, 40(1), 84-110.
- Eriksson, P. and Kovalainen, A. (2008), *Qualitative methods in business research*, London, UK: Sage.
- Falkheimer, J. and Sandberg, K.G. (2018). The art of strategic improvisation. *Journal of Communication Management*, 22(2), 253-258.
- Feldman, M.S. and Orlikowski, W.J. (2011). Theorizing practice and practicing theory. *Organization Science*, 22(5), 1240-1253.
- Feldman, M.S. and Pentland, B.T. (2003). Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Administrative Science Quarterly*, 48(1), 94-118.
- Feldman, M.S. and Rafaeli, A. (2002). Organizational Routines as Sources of Connections and Understandings. *Journal of Management Studies*, 39(3), 309-331.
- Fisher, C. and Amabile, T. (2009). *Creativity, improvisation and organizations*. The Routledge Companion to Creativity. Routledge, London, pp.13-24.
- Hadida, A.L., Tavainen, W. and Rose, J. (2014). Organizational, improvisation: A consolidating review and framework. *International Journal of Management Reviews*, 17(4), 437-459.
- Harvey, S. (2014). Creative synthesis: Exploring the process of extraordinary group creativity. *Academy of Management Review*, 39(3), 324-343.
- Hatch, M.J. (2018), *Organization theory: modern, symbolic and postmodern perspectives*, 4th Edition, Oxford: Oxford University Press.
- Hmieleski, K.M. and Corbett, A.C. (2008). The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing*, 23(4), 482-496.
- Hmieleski, K.M., Corbett, A.C. and Baron, R.A. (2013). Entrepreneurs' improvisational behaviour and firm performance: A study of dispositional and environmental moderators. *Strategic Entrepreneurship Journal*, 7(2), 138-150.
- Jarzabkowski, P. (2005). *Strategy as practice: An activity-based approach*. London: Sage Publications.

- Jarzabkowski, P. and Kaplan, S. (2014). Strategy tools-in-use: A framework for understanding “technologies of rationality” in practice. *Strategic Management Journal*, 36(4), 537-558.
- Kamoche, K. and Cunha, M.P. (2001). Minimal Structures: From Jazz Improvisation to Product Innovation. *Organization Studies*, 22(5), 733–764.
- Kamoche, K., Cunha, M.P. and Cunha, J.V. (2003). Towards a theory of organizational improvisation: Looking beyond the jazz metaphor. *Journal of Management Studies*, 40(8), 2023-2051.
- Keller, G. (1983). *Academic strategy: the management revolution in American higher education*. Baltimore: The Johns Hopkins University Press.
- Langley, A. and Abdallah, C. (2011). Templates and Turns in Qualitative Studies of Strategy and Management. *Research Methodology in Strategy and Management*, 6(1), 104-140.
- Leone, L. (2010). *A critical review of improvisation in organizations: open issues and future research directions*. Summer Conference 2010 on "Opening Up Innovation: Strategy, Organization and Technology". College London Business School, June 16 - 18.
- McDaniel Jr., R.R. and Drieber, D. J. (2005). *Managing the unexpected: complexity as distributed sensemaking*. In: McDaniel Jr., R. R.; Driebe, D. J. *Uncertainty and surprise in complex systems*. Heidelberg: Springer, pp. 51-66.
- McDaniel, R.R. (2007). Management strategies for complex adaptive systems: sensemaking, learning, and improvisation. *Performance Improvement Quarterly*, 20(2), 21-41.
- MacNab, B.R. and Worthley, R. (2012). Individual characteristics as predictors of cultural intelligence development: the relevance of self-efficacy. *International Journal of Intercultural Relations*, 36(1), 62-71.
- Merriam, S. B. (2009). *Qualitative Research. A Guide to Design and Implementation*. San Francisco, CA: Jossey-Bass.
- Meyer, V. and Lopes, M.C.B. (2015). *Administering the immeasurable: a critique of academic organizations*. Cad. EBAPE.BR, Rio de Janeiro, 13(1), 40-51.
- Meyer, V., Pascuci, L.M. and Meyer, B. (2018). Strategies in Universities: Tensions Between Macro Intentions and Micro Actions. *Revista de Administração Contemporânea*, 22(2), 163-177.
- Miner, A. S., Bassof, P. and Moorman, C. (2001). Organizational Improvisation and Learning: a field study. *Administrative Science Quarterly*, 46(2), 304-337.
- Moorman, C. and Miner, A.S. (1998). Organizational improvisation and organizational memory. *Academy of Management Review*, Briarcliff Manor, pp. 698-723.
- Moorman, C. and Miner, A.S. (1998). The convergence of planning and execution: Improvisation in new product development. *Journal of Marketing*, 62, 1-20.

O'Sullivan, D. and Dooley, L. (2009). *Applying the innovation*. Sage Publications, C.A.

Perry, L.T. (1991). Strategic improvising: how to formulate and implement competitive strategies in concert. *Organizational Dynamics*, 19(4), 51-64.

Perry-Smith, J.E. and Mannucci, P.V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, 42(1), 53-79.

Pyrko, I., Dörfler, V. and Eden, C. (2016). Thinking together: What makes Communities of Practice work?. *Human Relations*, 70(4), 389-409.

Ritter, T., Wilkinson, I.F. and Johnston, W.J. (2004). Managing in Complex Business Networks. *Industrial Marketing Management*, 33(3), 175-183.

Saldaña, J. (2013). *The Coding manual for Qualitative Researchers*. Third Edition. Sage Publications Ltd.

Samra-Fredericks, D. (2003). Strategizing as Lived Experience and Strategists' Everyday Efforts to Shape Strategic Direction. *Journal of Management Studies* 40(1), 141-174.

Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum, Geneva, Switzerland.

Smets, M., Morris, T. and Greenwood, R. (2012). From practice to field: A multilevel model of practice-driven institutional change. *Academy of Management Journal*, 55(4), 877-904.

Spradley, J.P. (2016). *The Ethnographic Interview*. Waveland Press, Inc.; Reissue edition.

Stacey, R.D. (1995). The science of complexity: an alternative perspective for strategic change processes. *Strategic Management Journal*, 16(6), 477-495.

Stacey, R.D. (1996). *Complexity and creativity in organizations*. San Francisco: Berrett-Koehler.

Stacey, R.D. (2011). *Strategic Management and Organisational Dynamics: the Challenge of Complexity*. London: Prentice Hall.

Stacey, R.D., Griffin, D. and Shaw, P. (2000). *Complexity and Management: Fad or Radical Challenge to Systems Thinking?* Abingdon: Routledge.

Teece, D.J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management, *Strategic Management Journal*, 18(7), 509-533.

Tsoukas, H. and Hatch, M. J. (2001). Complex thinking, complex practice: The case for a narrative approach to organizational complexity. *Human Relations*, 54(8), 979-1013.

Tsoukas, H. (2005). *Complex thinking, complex practice: the case for a narrative approach to organizational complexity*. In: Tsoukas, H. *Complex knowledge: studies in organizational epistemology*. New York: Oxford University Press, pp. 230-262.

Van Maanen, J. (2011). *Tales of the Field: On Writing Ethnography*. Second Edition. University of Chicago Press

Vera, D. and Crossan, M. (2005). Improvisation and innovative performance in teams. *Organization Science*, 16(3), 203-224.

Weick, K.E. (1993a). *Organizational Redesign as Improvisation*. In Huber, G.P. and Glick, W.H. (eds.). *Organizational Change and Redesign*. New York: Oxford University Press US, pp. 346-379.

Weick, K.E. (1998). Improvisation as a mindset for organizational analysis. *Organization Science*, 9(5), 543-555.

Wenger, E., McDermott, R. and Snyder, W.M. (2002). *Cultivating Communities of Practice*. Boston, MA: Harvard Business School Press.

Wenger, E. (2003). Communities of practice and social learning systems, in: Nicolini, D., Gherardi, S. and Yanow, D. *Knowing in organizations*. Armonk, NY: M.E. Sharpe, pp. 76-99.

Westley, F.R. (1990). Middle managers and strategy: Microdynamics of inclusion. *Strategic Management Journal*, 11(5), 337-351.

Whittington, R. (2003). The work of strategising and organising: For a practice perspective. *Strategic Organisation*, 1(1), 56-65.

Ybema, S. Yanow, D., Wels, H. and Kamsteeg, F. (2009). Studing everyday organisational life, In Sierk Ybema et al. (Eds.), *Organizational Ethnography*. Loondon: Sage, pp. 1-20.

TABLES

Table 1 - Data Source

<i>Data collect</i>	2016	2017	2018	2019
<i>Ethnographic Interviews</i>	Informal conversations with the Project Manager	Perception of Directors of corporate areas, managers and technical specialists.	In-depth interviews of participants' experience in phases 1, 2 and 3.	In-depth interviews of participants' experience in phases 4, 5 and 6.
<i>Participant Observation</i>	1st International event of academic innovation in the University Project Kick-off meeting Announcement for the participation of professors in the project School of Architecture began the development of infrastructure project.	Project Committee created “Coffee & Debate” meeting Continuous professors training Infrastructure Committee Architecture Presentation Technology Presentation	2nd International event of academic innovation in the University Project Committee meeting “Coffee & Debate” meeting Continuous professors training Infrastructure Committee	Project Committee meeting “Coffee & Debate” meeting Continuous professors training Infrastructure Committee
<i>Documents</i>	Kick-off presentation Macro Project plan Financial and schedule plan	Phase 1 and 2 Report Committee Minutes Architectural Proposal Project Tracking Report	Phase 3 and 4 Report Committee Minutes Technology Solutions Project Tracking Report	Phase 5 and 6 Report Committee Minutes Final Project Follow-Up Report

Table 2 - Data Analysis Process

Data Analysis Spiral Activities	Analytic Strategies	Outcomes
<i>Managing and organizing the data</i>	Preparing files and units	File naming system and organizing database of files and units of text, images, and recordings
	Ensuring ongoing secure storage of files	Creation of long-term file storage plan
	Selecting mode of analysis	Use of software, by hand or hybrid
<i>Reading and memoing emergent ideas</i>	Taking notes while reading	Written memos leading to code development, reflections over time, and/or summaries across files or questions or project.
	Sketching reflective thinking	
	Summarizing field notes	
<i>Describing and classifying codes into themes</i>	Working with words	Naming of initial codes
	Identifying codes	List of code categories and descriptions
	Applying codes	Assign the codes to units of text and recordings
	Reducing codes to themes	Finalized codebook
<i>Developing and assessing interpretations</i>	Relating categories/themes/families	Contextual understandings and diagrams
	Relating categories/themes/families to analytic framework in literature	Theories and propositions
<i>Representing and visualizing the data</i>	Creating a point of view	Matrix, trees, and models
	Displaying and reporting the data	Account of the findings

Source: Creswell and Poth (2017).

Table 3 – Statements of SI as “scaffolding” of strategy

<i>Significant Statements</i>	<i>Formulated Meaning</i>	<i>Aggregate Dimension</i>
“Improvisation was the path found as an innovation strategy. The strategy was to improvise all the time to make it work. So it's a means. It improvised along the way to get all the parts to fall into place”, technology manager.		
“There was a plan that the practice was showing that planning was not exactly what was needed effectively. [...] The goal was very clear, but the way it happened in practice was different. What mattered was the result”, infrastructure director.	The goal remained unchanged, but the strategy implementation path was a spontaneous and improvisation process. Improvisation to ensure the strategy.	<i>Improvisation in strategy structuring</i>
“In fact, we had an intention that was passed as a preliminary scope, but in the development, situations were happening that we had to change. We really had to improvise, even because of the functionality of the spaces. So maybe the first idea as a conception was one and then we came to see that, in practice, it would have to adapt to the reality of the university. All this during the process”, architecture coordinator.		
“If we had thought about the project before taking the financial resource, I don't think it would have happened. If we had to plan everything in the details. No! I see that this improvisation focus is necessary. We can't do a project round before we know it, because it is an innovation”, School of Education professor.		
“The project gave me security to change things. It has increased self-criticism. So it is okay for you to imagine something and it does not materialize. So I felt safer to say: “guys, let's change?”. I realized that I wasn't making a joke or running away from the script. I realized that was the attitude I had as a manager”, Communication coordinator.	Spontaneous and immediate response in the strategy building process that involved all project participants.	<i>Improvisation as an experience building process</i>
“I started thinking about the following improvisation strategy activities. So, the first ones I had to think very fast. And the following I already had: oh, I'll do it, but if it doesn't work, I'll go for it, but if it doesn't work, I'll go for it. So I already had these things in my head!”, workshop instructor.		
“It's so new and we didn't know what it was like to deal with this kind of project. I'm sure new issues will emerge throughout the project and we will have to somehow relocate, review, move so that we can finally get to the end”, controller manager.		
“The scenario of pressure and finding creative solutions leads to a different innovation”, chief technology officer.		
“I think a knowledge of the process helps with improvisation. How can I do this faster? How can I be more effective? If I know my process and I know the common goal at the end, I think it makes it easier”, infrastructure director.	Improvisation Practice to achieve better results and new solutions.	<i>Improvisation as a means of finding solutions</i>
“Try what to do. We were settling down, which would be better to do. We had to experiment”, planning coordinator.		
“But it is the culture of solving something that we do not know, that will appear yet, when it appears. So this one I think is one of my biggest challenges as a cultural transformation. How to teach people how to respond according to what they see and then adapt again and keep innovating”, IT director.		

Table 4 – Statements of SI as “lubricant” of the operational processes

<i>Significant Statements</i>	<i>Formulated Meaning</i>	<i>Aggregate Dimension</i>
“Improvisation shows, in fact, the fluidity of the process we can have. So always be very close to people in those decisions. Making decisions on the spot shows that improvising also works”, planning expert.		
“I think that eye to eye on the committee promoted engagement, on a matter of pressure, sometimes conflict. Nothing like you face human relations”, infrastructure coordinator.	Improvisation as a lubricating potential for the articulation of institutional processes.	<i>Improvisation as alignment in political articulation</i>
“Look, I was knocking from door to door and trying to sort out somehow to walk [the process]. Many things I really went after and made happen. Negotiations, made in all areas, and informal conversations, contributed greatly to this process”, planning coordinator.		
“There was a lot of improvisation because the institutional processes were too slow. These processes did not have a quick response to the kind of project we were dealing with. So we had to make a project committee with the participation of the involved areas, so that the managers and technicians could follow the project activities and have more fluent institutional processes. If this had not happened, we would have had more delays and conflicts”, the planning coordinator.	Alignment of technical competence and experience in the diversity of agents. Engagement through improvisation practices.	<i>Improvisation in the engagement of multidisciplinary</i>
“This action [committee] benefited the process of changing academic innovation. The discussions became more fluid. We began to speak the same language, there was an exchange of experience”, architecture coordinator.		
“It was a success to have brought these people to a single table, and to have them participate from start to finish, like the Committee. So the networks have to be very closely related. It's a huge challenge”, supply manager.		
“Informal communication was worth much more than formal communication, sending e-mail, making minutes, signing the agreements. This was worth much more than formalization”, planning coordinator.	Improvisation as fluidity of operational processes, based on the knowledge of the institutional process and the strategy to be implemented.	<i>Improvisation as a trigger for process dynamics</i>
“Sometimes we tried to insert some strategies, for example hiring more than one company, or using alternative times to set things up. These are ideas that we try to put in, but that wasn't very easy to come by”, Project Head.		
“So sometimes I didn't get committee approval, but I got Project Head approval. Some informal conversations, not recorded in the minutes, not registered anywhere, any kind of record, were decisions that happened. And that gave the process fluidity”, project technical expert.		
“Innovation projects do not have a stone path, you have to go finding out where you are going. Go testing. That's why innovation projects have a much higher budget spend”, planning coordinator.		
“So the creative questions that often border on improvisation are incorporated as technical solutions and given a technical answer to those ideas. So it's an improvisation, in a way, to maximize the use of elements”, architect.	Improvisation as a way to bring efficiency to operational processes. A new way of doing.	<i>Improvisation practice in disruptive thinking</i>
“It had a final goal, a final delivery to be fulfilled. It was hard for my team and me because we are all rational and want perfect planning. They say that life is what happens when we plan, but not...”, director of infrastructure.		

Table 5 – Statements of SI as an “engagement” for innovative practices

<i>Significant Statements</i>	<i>Formulated Meaning</i>	<i>Aggregate Dimension</i>
“The focus is to educate professionals able to live in a society whose changes are frequent, naturally facing challenges not yet known”, University Provost.		
“You have a lot of methodologies and in the classroom, we use a mix of them. Which I think is precisely innovation and improvisation. Improvisation leads to this innovation. You end up mixing the methodologies thinking about the student’s learning outcome”, professor of health area.	Innovation through the transformation of the teaching-learning process.	<i>Inovativity in academic practices</i>
“The modern world has to be thinking disruptively. Not in a predictable way. The world needs a solution. So we are giving less value to technique manipulation and more value to solutions”, architecture coordinator.		
“We do not want the student to have an encyclopedic knowledge. He has to handle that content to relate concepts. In future education, the student will have to solve things he does not know. So how to prepare a student to work with this uncertain future?”, professor of electrical engineering.		
“The whole process was designed for engagement. So, there was a whole process of enchantment for the project for students to think as part of their academic education”, workshop instructor professor.		
“So you learn how to manage resources. Sometimes you already contemplate this in the plan when you get more experienced, but sometimes it's the classroom feedback that will tell you. So I have to be open to change. Unpredictability gives even a thrill for the professor. We're dealing with the human factor”, journalism professor.	Engagement through communities of practice, persuasion and resource management during unpredictability.	<i>Engagement in the innovation process</i>
“It's a community of practice. It is very rare to build communities of practice. They are emerging now, that people help each other voluntarily. So it's very dynamic”, School of Education professor and instructor.		
“This engagement is built by convincing, building ideology, politics, training, workshops. This process is put at risk when crisis situations occur, such as the non-delivery of classrooms on schedule, which professors were encouraged to use”, manager of the School of Education.		

Table 6 – Effect of SI in "domino effect"

Strategy	Operation	Innovative Practices
<p><i>Without Improvisation in Strategy</i></p> <ul style="list-style-type: none"> - Managerial "myopia" in the unexpected. - Lack of flexibility in unpredictable situations and complex contexts. - "Gap" between scope and execution. - Decisions not adapted to the dynamic and changing context. 	<ul style="list-style-type: none"> - Limited operation in rational processes. - Difficulty in dealing with unexpected. - Implementation based on many barriers. - Lack of elements such as self-organization and adaptation. - Dysfunctional operationalization. 	<ul style="list-style-type: none"> - Frustrated expectation with results according to a rational plan. - Lack of adaptability in different contexts. - Limitation of agent engagement. - Lack of creativity and motivation. - Limited results on innovation.
<ul style="list-style-type: none"> - Prepared for unexpected. - Flexibility and adaptation. - Self-organization. - Promote creativity and engagement. - Scope focused on innovation. - Recognize failures as learning. <p><i>With Improvisation</i></p>	<p><i>Without Improvisation in Operation</i></p> <ul style="list-style-type: none"> - Lack of creativity and adaptation. - Loss of opportunity to optimize resources and processes. - Do not consider the specificities of a complex and changing context. - Lack of initiative to promote solutions in times of crisis and changes. - Impact at the organizational learning. 	<ul style="list-style-type: none"> - Limited technical and operational support in unpredictable situations. - Lack of operational adaptability in different contexts. - No Creativity and Flexibility in innovation practices. - Limited results on innovation.
<ul style="list-style-type: none"> - Prepared for unexpected. - Flexibility and adaptation. - Self-organization. - Promote creativity and engagement. - Scope focused on innovation. - Recognize failures as learning. 	<ul style="list-style-type: none"> - Flexible and dynamic processes. - Deal with unexpected. - Alignment between scope and implementation through adaptation. - Evidence of elements such as self-organization and adaptation. - Functional operationalization. 	<p><i>Without Improvisation in Innovation Practices</i></p> <ul style="list-style-type: none"> - Misalignment in different contexts. - Limitation of creativity. - Decontextualising the practice with reality. - Lack of engagement and commitment. - Limited results on innovation.

FIGURES

Figure 1 - Data structure

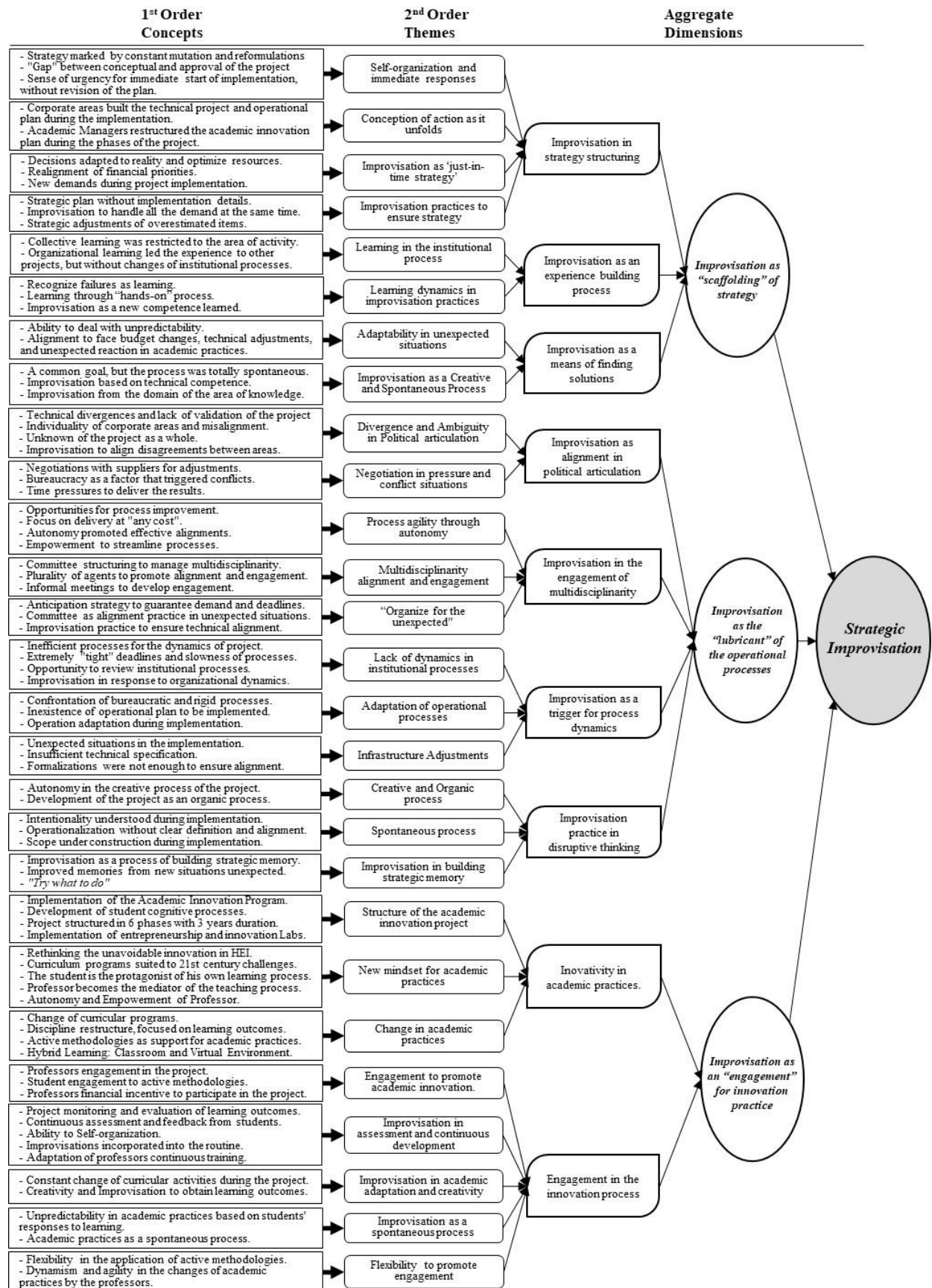
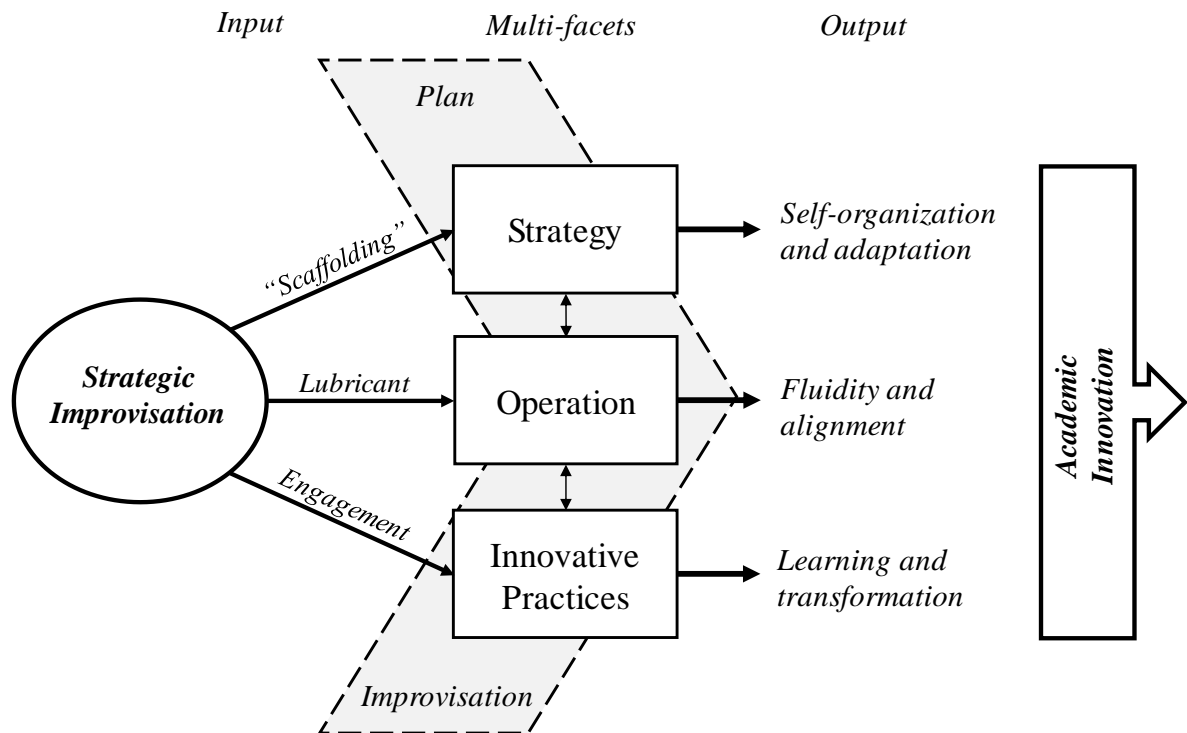


Figure 2 – Multi-facets of strategic improvisation

2.2 PAPER 02 – STRATEGIC IMPROVISATION: A CONCEPTUAL FRAMEWORK

Strategic improvisation: A conceptual framework

Abstract

Organizations need to find ways to survive in unpredictable, dynamic and rapidly changing environments. This study aims to explore the conceptual framework of strategic improvisation in organization studies through an integrative review. In this approach, articles published in international journals were categorized in terms of objectives, thematic axes, and evidence to explore their theoretical and practical contributions. This first conceptual framework about SI is composed of a "strategic improvisation tree", integrated by (i) roots, (ii) trunk and (iii) branches. The main concepts of organizational improvisation and strategic improvisation were systematically positioned in a symbolic representation. The results clarify the background, implications and relevance of strategic improvisation and the recent path taken by organizational improvisation. The findings allow us to offer guidelines for future studies that contribute to the advance of this field of research. This study makes three main contributions: first, presents strategic improvisation as a comprehensive way to achieve better performance; second, SI practices can be seen as the “sap” of the tree that feeds and permeates all levels of the organization; third, it demonstrates the differentiation of the OI and SI approach in organization studies. Future research and managerial implications in the field of strategic improvisation are highlighted in a consistent topic as one of the ways to deal with organizational dynamics.

Keywords: strategic improvisation; integrative review; conceptual framework; strategic management; dynamic organizations.

Introduction

Over the past two decades, the study of improvisation in organizations has increased substantially. Improvisation is a coping alternative for situations where change and turbulence exceed the capacity to plan and adapt. By improvising, individuals respond flexibly to new circumstances, making exceptions to rules and to the subconscious use of their intuition to generate rapid solutions (Crossan and Sorrenti, 1997). A minimal formal definition involves three conceptual dimensions (Cunha et al., 1999; Miner et al., 2001), including the convergence of design and performance (extemporaneity), the creation of some degree of novel action (novelty) and the deliberateness of the design that is created during its own enactment (intentionality).

Organizational improvisation (OI) has been attributed to an opportunity of exploring new ideas as a result of unexpected events (Moorman and Miner, 1998b; Mac Nab and Worthley, 2012). It is a valuable initiative to explore opportunities outside conventional fields, creating new ideas (Fisher e Amabile, 2009). Organizational improvisation also can be defined as “the conception of action as it develops, based on available material, cognitive, affective and social resources” (Cunha et al., 1999, p. 302); and “the degree to which composition and execution converge in time” (Moorman and Miner, 1998b, p. 698).

Although fifteen years after Cunha et al. (1999) developed the first review, five years after Hadida, Tarvainen and Rose (2015) conducted a broad study of OI, considering the period from 1980 to June 2014, the cumulativeness of OI research remains low. However, strategic improvisation (SI) approaches are emerging in strategic management and demand further development. Notably, all previous literature reviews of organizational improvisation did not address the SI construct, especially its role in strategic practice in organizations. Given that this concept has emerged from recent organizational studies (Mahmood and Bakar, 2016; Falkheimer and Sandberg, 2018), this article aims to highlight new perspectives from a conceptual model in the SI field of study. The interrelationship between the concepts of OI and SI can be confused and undefined, especially when examined in the same context. In addition to the lack of congruence of these two approaches in the field of study, the definition of SI remains under developed. The SI framework introduced in this study addresses these concerns.

Strategic improvisation is an emerging field of study in strategic management that deals with finding solutions to how organizations extemporaneously adapt to environmental dynamism (Bakar et al., 2015b). SI has been mentioned in organization studies as a new paradigm for fast learning, adaptation and strategic renewal (Vera and Crossan, 2005). The

ability to improvise will not only solve the problem but will also provide managers the expertise to seize the opportunities that will move the organisations forward, as a result of their new strategic decisions (Crossan and Hurst, 2003; Hmieleski et al., 2013). Improvisation can be adopted as a strategic factor (Perry, 1991), both for the progress of the strategy and for operational practice (Smets et al., 2012). More recent efforts have given attention to SI in response to unplanned actions and the new strategy on the fly (Cunha, Miner and Antonacopolou, 2017).

None of the existing typologies took into account the manifestations of strategic improvisation (SI) and the proposed metaphors do not address it at all. This is the first SI literature review. The absence of a consolidating framework of SI may be justified under the assumption that there is no clear delimitation and the role between SI and OI approach. Are these approaches congruent, complementary or simply disparate? How exactly do they differ? At some point does OI become SI? Or SI derives from OI? These approaches depend on a particular context differentiation, or they can both materialize simultaneously? Although this study does not claim to answer all these questions, it seeks to explore the conceptual framework of SI by adding reflection on OI. Indeed, the reflection between these two approaches was inevitable because they act simultaneously in the dynamic and unpredictable context of organizations.

This study aims to explore the conceptual framework of SI in organization studies through an integrative review (IR). This method consists in the synthesis of knowledge and applicability of results of significant studies into practice (Whittemore and Knafl, 2005). The main theoretical contribution of this study was to provide a systematic SI model, segmented in (i) roots, (ii) trunk and (iii) branches, and analyzed their implications for management studies. Another significant contribution to the field of research is demonstrated in the organized and updated OI concepts. Thus, the important differentiation between both SI and OI approaches is proposed to avoid future conceptual distortion, once these approaches have distinct facets and outcomes, although in practice they act simultaneously.

Methodology

The integrative review (IR) method (Whittemore, 2007) develops a holistic understanding of the topic of interest, presenting the state of science and contributing to the development of the theory. IR is a general review of the existing literature following as a systematic process (Cooper, 1998). Typically this process involves both quantitative and qualitative studies. The diversity of the sampling frame is the hallmark of this type of review (Whittemore and Knafl,

2005). It is a type of review that can go beyond the analysis and synthesis of findings allowing exploiting other research dimensions, and that presents potentialities for the development of new theories and new problems for research (Torraco, 2005). These literature reviews resulted in new understandings and, in most cases, significant reconceptualizations of the mature topics reviewed. Usually IR of new or emerging topics include reviews of new forms of organizations (Smith, 1997; Liker, Haddad and Karlin, 1999).

This study aims to explore the conceptual framework of strategic improvisation in organization studies. IR is the means for this type of research that develops reflections or in-depth analyzes of articles that focus on the background, context, and implications of this theme. In an attempt to organize the literature and facilitate the identification of points of convergence, we proposed an integrative framework that highlights improvisation outcomes and contextual properties as key dimensions for dynamic contexts. This approach was justified by the growing interest in the field of improvisation practices in complex organizations, highlighted in the last twenty years. Above all, a new concept of “strategic improvisation” has emerged in the organization studies, which requires a deeper conceptual framework. Thus, the method of integrative review (IR) was chosen as “a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way” (Torraco, 2005).

In the context of strategic improvisation, the IR method was seen as appropriate for an emerging topic in organization studies. A systematic approach was used to ensure the necessary rigor of scientific research and, therefore, the legitimacy of the established evidence. Once this topic is relatively new and has not undergone a comprehensive review of the literature, this integrative review is conducted for a concept of strategic improvisation as a new representation, rather than a reconceptualization of the previous models.

Therefore, six steps of the integrative review were adapted from Cooper (2010) approach: formulating the guiding assumptions, literature search and sampling, data collection, critical analysis, discussion of results and presentation of the integrative review. The selection of published articles on this topic and the treatment of data followed the stages detailed below.

(i) *Formulating guiding assumptions*: Data were organized in terms of support for one of three assumptions: (a) strategic improvisation arises from existing organizational improvisation studies; (b) strategic improvisation emerged from a new conceptual framework based on empirical management studies; or (c) strategic improvisation is a new approach that

relates some concepts of organizational improvisation, but is not limited to it; however, it proposes a new way of thinking about strategic management.

(ii) *Literature search and sampling*: This research aimed to include only the selection of publications from international databases known for their relevance and impact factor, defined articles in English. The selected databases were SCOPUS and Web of Science (WOS). The published articles in SI approach were selected without a restriction on the period due to the emergent field of study. The search contemplated OI approach articles were defined the period from 2014 to 2019, covering the last five years. This was because a systematic review was done by Hadida, Tarvanein and Rose (2015) from 1999 to 2014 and contemplated the OI construct. This study aimed to corroborate with the continuity of that study with recent publications.

Given the 31 articles on the OI theme from 2014 to August 2019 in the two databases above mentioned are presented in Table 1, there was a slight increase in publications on this topic compared to previous studies, as Hadida, Tarvanein and Rose (2015). According to the emerging field of SI, the conceptualization of this approach is still under development, however, it proves to be promising as results presented and detailed in the Finding section. Strategic Improvisation publications were presented from 2006 to 2018 as shown in Table 2.

[Insert Table 1 about here]

[Insert Table 2 about here]

(iii) *Data collection*: This integrative review sought all articles listed on SCOPUS and WOS database with the OI approach. Research area parameters were defined in the 'Business, Management and Accounting' (SCOPUS) and 'Business Economics' (WOS) fields relevant to the topic of this study. The keywords 'Organizational Improvisation'; 'Improvising'; 'Improvisation'; 'Improvisational' were used to refine the search. Articles dealing with OI have been identified in journals, including (but not limited to): *Academy of Management Journal*; *Strategic Management Journal*; *Journal of Management*; *Journal of Business Research*; *Journal of Product Innovation Management*; *Creativity and Innovation Management*; *International Journal of Management Reviews*; *Technovation*; *Journal of Organizational Behavior*; *Management learning*; *Technology Analysis & Strategic Management*; and, *Business Process Management Journal*.

It was also searched all recent articles listed in SCOPUS and WOS with the SI approach under the parameters of the 'Business, Management and Accounting' (SCOPUS) and 'Business Economics' (WOS) research area. The keywords 'Strategic Improvisation' and 'Strategic Improvising' were used to refine research in the electronic environment. This step led to the identification of articles dealing with SI in the following journals: *Journal of Communication Management; International Business Management; Management Decision; and, Data Base for Advances in Information Systems*.

Ten articles from the SI approach were selected in the first screening of the SCOPUS and WOS database. Of this total, four articles were duplicitous. Therefore, a preliminary sample of six articles was obtained, before reading their abstracts and introductions. While reading the abstracts and introductions, one study was identified as irrelevant or unfocused for the present subject in question. These studies were excluded from the final sample. With these specific exclusion criteria in mind, another one article did not respond to the proposal of the present study. Thus, four articles were considered to be fully valid, adequate and addressed the focus of the SI approach research in an in-depth way, enabling the filling of Table 3.

In the first screening, 49 articles of OI approach were selected in the SCOPUS and the WOS database. Of this total, eleven articles were duplicitous. Therefore, a preliminary sample of 38 articles was obtained, before reading their abstracts and introductions. The selection of articles was defined while reading the abstracts and introductions, two studies were identified as irrelevant or unfocused for the present subject in question. These studies were excluded from the final sample. With these specific exclusion criteria in mind, five articles did not respond to the proposal of the present study. Thus, only 31 articles were considered to be fully valid, adequate and addressed the focus of this research in an in-depth way. These 31 articles constituted the body of this research, comprising the final sample retrieved, treated, and categorized in Table 4. The data collection diagram of this integrative review was compiled and presented in Figure 1.

[Insert Figure 1 about here]

(iv) *Critical analysis*: Critical analysis of literature required carefully examining the main ideas and relationships of an issue and providing a critique of existing literature (Torraco, 2005). Critique identified the strengths and key contributions of the literature as well as any deficiencies, omissions, inaccuracies, and other problematic aspects of the literature. The critique aimed to identify aspects of a phenomenon that are missing,

incomplete, or poorly represented in the literature. It also identified knowledge that should be created or improved in light of recent developments on the topic.

(v) *Discussion of results*: The review presented its results as a synthesis of the field surveyed covering: the research focus used, research objectives, thematic axes, and contexts. Varied study samples were compared, contrasted, and related to providing an integrated view and richer theme searched.

(vi) *Presentation of the integrative review*: In the discussion section has presented the topic ‘Towards a Conceptual Framework’ as a result of the integrative review from a synthesis of concepts found relevant in the sample. Findings according to this methodological process were summarized and presented in the next section. Subsequently, the content of this IR was analyzed, allowing inferences and reflections for the field of study.

Findings

Although organizational improvisation has been recognized as a relevant area of management research and strategic improvisation has emerged in organization studies, there has been a lack of systematic research on each approach, in the same study, and, if relevant or not, the relationship between them. The research findings demonstrated the embryonic conceptualization of strategic improvisation and the lack of research in this area. However, organizational improvisation has shown some advances in the research field, particularly in the diversity of forms and manifestations pointed out in recent studies.

In this study, we first outline the strategic improvisation research approach, highlight the key results and how it has been recognized in the management field. Then, we expanded the organizational improvisation research, with the latest articles published on the theme, the main results and advances in this area of research. The relationship between these two approaches and concepts is presented in the discussion. With this, the results of the SI integrative review are presented in Table 3 and described below.

[Insert Table 3 about here]

A contemporary concept of strategic improvisation has been described and approached based on the creative arts and organizational crisis theory as a valuable approach for communication professionals in the article by Falkheimer and Sandberg (2018). For these authors, strategic improvisation combined the need for planning and structure with creative action and was a normative idea of how to work in an efficient way. The approach in SI

demonstrated in this article allowed us to understand how strategic improvisation was practiced. An analysis of the interviews led to 11 defining patterns or themes typical for strategic improvisation and strategic improvisers: 1. *From communicating to managing*; 2. *From constancy to change*; 3. *From wall flower to leader*; 4. *From caution to courage*; 5. *From desktop to relationships and networks*; 6. *From sign-offs to taking charge*; 7. *From lengthy regulating documents to short strategies*; 8. *From nagging to explaining consequences*; 9. *From lone wolf to teamwork*; 10. *From duty to mission*; and, 11. *From abundance to voluntary restraint*. The model proposed had three interconnected parts: a clear framework (composition), a professional interpretation (interpretation) and a situational adaptation based on given possibilities and conditions (improvisation).

The relationship between strategic improvisation and small and medium business (SME) performance was highlighted in the study by Mahmood and Bakar (2016). The findings revealed that a significant relationship exists between strategic improvisation and performance and that entrepreneurial self-efficacy plays a moderating role in the strategic improvisation and performance relationship. In addition, studies have used the theoretical lenses of organizational improvisation and bricolage to examine how strategic improvisation can lead to a significant performance in organizations. This was the approach of Teoh, Wickramasinghe and Pan (2012), who used the perspective of a case study, to examine how strategic improvisation might give rise to fruitful healthcare information systems novel design performances. For these authors, the conceptualization of SI may be achieved with the support of the resource-time-effort components. In this study, the SI was an iterative process to transform ideas, such as the incorporation of the hospital's social and technical contexts. In this sense, it can be inferred that the decision and action are "strategic" based on the relevance of their results for the organization as a whole.

The study of Cunha and Cunha (2006) contributed to the creation of complexity theory of strategy by integrating several ideas that have previously been explored independently in the strategy literature, namely improvisation, minimal structures, simple rules, dynamic capabilities, bricolage, and organizational resilience. It considered why certain environments created the need for strategic improvisation and minimally-structured designs. In this sense, rather than planning and then acting, strategic management was portrayed as a process in permanent flux, with action and learning feeding back to each other in a succession of iterations. Given the limitations of planning in highly dynamic environments, managers are challenged to make decisions as they "go along". In this sense, strategic management can be portrayed as occurring when improvisational decisions are made, framed by a number of

simple rules that prevent the organization from drifting. For these authors, simple rules can be viewed as synthesizing strategic intention, managerial foresight and organizational control.

This integrative review aimed at an incremental analysis of the OI theme to previous studies (Cunha et al., 1999; Hadida, Tarvainen and Rose, 2015) with the important development of recent publications from 2014 to date, whose systematic analysis has not been presented. In the compilation of results obtained in the final sample of OI approach, the articles were organized in Table 4 following the most recent years and alphabetical order of authors.

[Insert Table 4 about here]

The results of qualitative research in the field of OI have been disseminated and deepened in different organizational contexts. Based on a large set of longitudinal data, some results have suggested that variations in the degree to which firms engaged in aspects of OI, such as bricolage behaviors, may provide a widely applicable explanation of firms' ability to innovate under resources constraints (Senyard et al., 2014). Improvisation is not a static but continuous process that also evolves and creates new social value in the use of bricolage (Tasavori, Kwong and Pruthi, 2018). In particular, this process of improvisation stood out in the emerging and interdependent relationship between business decisions in a dynamic and changing context. The challenge is to link decisions, dynamic contexts, strategic improvisation and outcomes. Causality, interdependency, tight and loosely coupled, politics plus organizational contexts that favors creativity, innovation, cooperation and informality. Strategies are performative (Kornberger and Clegg, 2011) and consequently decisions and actions.

Organizational improvisation can be seen as a tool in response to unpredictable events that, if not resolved, could have an adverse effect on business (Best and Gooderham, 2015). The incorporation of bricolage was perceived as a way to make better use of limited resources, proving to be promising for managerial effectiveness in complex systems (Scaglione, Meyer Jr. and Mamédio, 2019). Peters, Wieder and Sutton's (2018) approach corroborated this by presenting the OI manifestation in two specific competencies: strategic momentum (for strategic action) and organizational flexibility (for adaptive action). Strategic momentum was related to the creativity variant which Cunha et al. (2015, p. 516) describe as processes that “embellish the original structure, incorporating novel solutions to emerging problems”. Organizational flexibility was related to the spontaneity variant which Cunha et al.

(2015, p. 516) describe as processes that “respond to spontaneous departures and unexpected opportunities”.

Based on the writings on organizational improvisation (Moorman and Miner, 1998), when a change is widespread focusing on innovation in a complex system, the aspect of emergence was also highlighted (Akgun, Keskin and Byrne, 2014). In this study, the results showed that (a) emergence variables positively influence firm product innovativeness, (b) different context variables have positive, negative, and nonlinear impacts on different emergence-related variables, and (c) emergence variables partially mediate the relationship between the complex adaptive systems context and firm product innovativeness. In this sense, OI may be a means to overcome barriers to change, such as inertial forces in emerging economies (Li and Tang, 2010), facilitating strategy emergence (Kyriakopoulos, 2011).

The combination of structure and improvisation in emergence can strengthen an organization's response efforts and foster a greater sense of resilience in unexpected and crises (Fifolt et al., 2017). Moreover, while improvisation can help organizations face unexpected situations, clear purpose does not necessarily impede dysfunctional forms of improvisational practices, which can expose the dark side of formal authority (Giustiniano, Cunha and Clegg, 2016) with deviations from standard procedures.

In this integrative review composed of recently published articles, OI has emerged as an important component in achieving new and novel tasks and activities, in dealing with emergent requirements, in the development and delivery of new products and services (Leybourne, Lynn and Vendelø, 2014). These authors observed four occurrences of this aspect: (1) local interaction changes what is ‘known’ organizationally; (2) managerial control of improvisational working practices involves a particular paradox, given that one is in charge but not in control of such innovation processes which are complex and unstructured; (3) change happens in local processes in small and incremental shifts; and (4) new and innovative approaches will therefore emerge from informal settings, and the themes will be perceived as ‘shadow themes’ which may be noticed and classified as subversive by those involved in the interaction. This approach corroborates empirically with the link to new product and process outcomes, creating value for innovation (Whalen and Boush, 2014).

Furthermore, improvisation was considered as an inevitable political component of organizations, rather than considering improvisation as a process that occurs in politically unproblematic contexts (Cunha, Clegg, Rego and Neves, 2014). In this sense, improvisation in organizational theory has varied political consequences for the power circuit. Thus, different forms of organizational improvisation were proposed by these authors as ad hoc,

secret, provocative and managed. The four stages in the study of improvisation reflect different improvisational forms of practice, responding to diverse internal contexts. Offenhuber and Schechtner (2018) developed the approach of improstructure for understanding infrastructure governance as an improvisational process of “call and response” among a diverse set of actors. Their approach considers informality and improvisation not outside, but instead often located inside formal systems of governance.

Improvisation was better understood as a multi-shaped, polymorphic process, manifest in several forms of learning over time and place, characterizable as resistive, subversive, episodic and semi-structured processes (Cunha et al., 2014). In other words, improvisation is not just something individuals do but it is a learned capacity that organizations can manage. However, research by Vera et al. (2014) developed a causal theory by contrasting the individual characteristics associated with 'thinking before acting' and 'acting before thinking'. This approach converges with the concept of improvisation as the ability of an individual to deal in complex and unexpected situations in an improvised, creative, entrepreneurial, contextual and professional manner (Nisula and Kianto, 2015). This approach represented a more dynamic and innovative behavior in real-time.

Organizational improvisation was described as a spontaneous and creative action process (Suesse, 2015) that follows a specific objective, such as the generation of new solutions and higher relevance in the context of integrated solution offerings (Suesse, 2016). Managerial and organisational characteristics directly affected OI, and also competitive turbulence impacted the relationships between different internal characteristics and improvisation in different ways (Hodgkinson, Hughes and Arshad, 2016). Different ways in which the processes and interactions involved in an improvisation capability interacted with the context were detected in OI manifestation (Vera et al., 2016). In that study, an improvisation capability helped high-performing R&D teams to exploit new opportunities for the commercial advantage of a business, become more innovative, and decrease cycle time. In this sense, improvisation converged as a multipurpose capability for operational and dynamic purposes (Vera et al., 2016).

A proportion of activity around these contemporary and emerging practices was based around the recognised components of improvised work such as intuition, creativity, and adaptation (Leybourne, 2017). For this author, the effective use of creative thought, together with the proven capacity plus ability to leverage intuition to apply adaptive interventions, assisted with moving some practitioners from the ‘mechanistic’ to the artistic’ level. This helps in effective delivery of tasks and project activities in uncertain environments.

Valaei and Rezaei (2016) demonstrated that explorative learning has a positive impact on improvisational creativity and innovation while improvisational creativity has a positive influence on compositional creativity and innovation (Valaei et al., 2017). For organizations, in order to improvise, they need “insight, rapid experimentation and evolutionary learning”, as cited by McGrath (2010, p. 247). OI was considered a subset of innovation and experimentation (Du, Wu, Liu and Hackney, 2018). The existence of a culture favorable to experimentation, to the autonomy of managers, contributed to reviewing processes and disseminating practices of improvisation (Scaglione, Meyer Jr. and Mamédio, 2019).

By considering the merger between design and execution within an adaptation process, the improvisation concept became critical once its essence resides in this blend (Abrantes et al., 2018). In this sense, organizational improvisation, defined as the abandonment of a deliberate process to gather and deploy information quickly, is not deliberate but is an emergent process of learning. Organizational learning during improvisation took place via two mechanisms: the recognition of action outcomes and the selective retention of such outcomes (Liu et al., 2018). The interaction of these two factors with improvisation would then have a moderating effect on subsequent innovation outcomes. Belitski and Herzig (2018) highlighted seven factors as an effective toolbox to document innovative capacities such as expertise, community support, evaluation systems, leadership and sideman, democratic and collaborative culture, mentoring systems. Team’s creativity and cognitive architecture were acknowledged as key components of organizational improvisation.

Discussion

Towards a Conceptual Framework

Strategic improvisation tree: roots, trunk and branches

Based on a fertile field of management, improvisation was metaphorically represented by a fruitful tree in this study. It is a pictorial representation of something complex. The fruits generated represents the results of adaptability, flexible systems, innovation and creativity. These are fundamental dimensions that signal the occurrence of improvisation in strategic practices. A creative exercise, where creativity is “the generation of new and useful ideas” (Amabile, 1997, p. 40) the substantial convergence of designing, planning and execution in an ongoing process (Moorman and Miner, 1998b), the novelty of the process and outcome (Baker and Nelson, 2005), an intuition as initial stimulus (Crossan and Sorrenti, 1997), the extemporaneous and deliberate nature of the action (Moorman and Miner, 1997; Vera and Crossan, 2004), the absence of plan in the action (Moorman and Miner, 1998b) and

unplanned bricolage (Baker and Nelson, 2005; Baker, 2007). The strategic improvisation tree was described in three categories: (i) roots; (ii) trunk; and (iii) branches, as detailed in Figure 2.

[Insert Figure 2 about here]

Organic growth is derived from knowledge fertilizers, minimal structures and macro guidelines. In this context, improvisation grows and emerges in a dynamic and complex context with significant outcomes for strategic management. Improvisation becomes a driver and potentiator of new ideas and opportunities. In this metaphor of ‘strategic improvisation tree’, strategy development is represented by the process of feedback looping in organizations, reevaluating their strategic processes and making new strategic decisions as they unfold. It is perceived the fusion between plan and execution during strategy structuring through improvisation practices.

The concept of environment in organization theory leads to the understanding that organizations either adapt, select or even create their environment. The idea behind this is the existence of an environment that either influences or is influenced by organizations’ actions. Therefore, there is also an inside world and an outside world influencing organizations. This means that there are not only internal forces acting upon organizations but also external forces pressuring organizations toward innovation and change. All these forces are somehow sources that either stimulate or even constrain organizational behavior and performance.

To respond to existing internal forces and external pressures, organizations depend on their managerial capacities to deal with elements such as intentions, rationality, interactions, experience, choices, processes and resources, emergence, thinking, action, and outcomes. In particular, in environments characterized by high speed, heterogeneity of experiences, abundant opportunities and high unpredictability (Bingham and Eisenhardt, 2014). The diversity of organizational improvisation perspectives may be in some respect interrelated. This shows that they are not completely independent of each other.

Improvisation initiatives enable organizations to cope with unforeseen events or other environmental fortuities which take distinct forms. These improvisational manifestations, which are represented in our framework named “strategic improvisation tree”, are quite representative of countless conditions and circumstances brought about by internal or external environment forces that are often pressuring the management of organizations. Flexibility as a creative thinking skill that allows individuals and groups to explore new cognitive paths

(Amabile, 1996) was defined as "the ability to change or react" (Thomke 1997, p. 105). By improvising individuals flexibly respond to new circumstances, make exceptions to the rules (Aram and Walochik, 1996) and subconscious use of their intuition to generate solutions quickly (Crossan and Sorrenti, 1997). Even if there was time available to plan, people could "act in a way to gain clearer identities, learning from the retrospective interpretations of improvisations needed to deal with discontinuous work tasks" (Weick 2001a, p. 177).

The theoretical basis of the proposed model was categorized and presented in Table 5.

[Insert Table 5 about here]

(i) *Branches: Capillarization of strategic improvisation*

Conceptually, the term capillarization refers to something that is better distributed and covers many different areas. In the managerial context, this term can mean reaching most areas of the organization, including diversity of degrees or levels (Hadida, Tarvainen and Rose, 2015). Capillarization in the strategic improvisation tree means the role of improvisation effectively in action. This process of improvisation is characterized as spontaneous, can be perceived in micro and macro processes (Cunha, Miner and Antonacopoulou, 2017), where the conception and execution are simultaneous (Baker et al., 2003; Webb and Chevreau, 2006; Zheng et al., 2011). From this perspective, the infra-ordinary practices (Cunha and Clegg, 2019) can be evidenced rather than extraordinary. This is the process in which the composition and execution of actions converge (Kamoche and Cunha, 1999; Miner et al., 2001; Crossan et al., 2005; Hmielecki and Corbett, 2008).

Improvisation creates value from unexpected opportunities (Crossan et al., 1996; Weick, 2001) by performing activities in a non-routine or unexpected way (Webb and Chevreau, 2006) and has been highlighted in research that responds quickly, flexibly, and self-reflexively to change (Tsoukas and Chia, 2002; Smets et al., 2012; Langlely et al., 2013). In capillarization, the infra-ordinary practice of improvisation is essential, where dimensions such as extemporaneity, flexibility, novelty and intentionality are expressed (Cunha and Clegg, 2019). During the capillarization process, strategic improvisation is the main aspect as a way to deal with ambiguity and divergent contexts.

(ii) *Trunk: Structuration process*

Structuration process helps to recognize the interaction between individual and structural factors underlying the choices. It is not just (senior) management that shapes the

structures (and leads), but everyone involved in the organization. Strategy can positively impact an organization when it is also reproduced from the bottom up.

Structuration theory, a concept in sociology that offers perspectives on human behavior based on a synthesis of structure and agency effects known as the “duality of structure” (Giddens, 1984, p. 29). Instead of describing the capacity of human action as being constrained by powerful stable societal structures or as a function of the individual expression of will (i.e., agency), structuration theory acknowledges the interaction of meaning, standards and values, and power and posits a dynamic relationship between these different facets of society. Giddens (1984) argued that just as an individual’s autonomy is influenced by structure, structures are maintained and adapted through the exercise of agency. The interface at which an actor meets a structure is termed “structuration”.

The structurationist sense of flow builds a bridge to the important process tradition in organization theory, which has long drawn on structuration theory to analyse change over time (Langley, 2009). In the context of strategic improvisation tree, the concepts of structuration are based on: minimal structures (Kamoche and Cunha, 2001; Plowman et al., 2007; Cunha et al., 2009), emerging structures (Zack, 2000) and structuring perspective (Ranson et al., 1980; Kamoche et al., 2003) that support strategy and immediate responses to unexpected situations. This approach considers the improvisation perspective as structuration, restructuring actions and performance.

(iii) Roots: Foundation of strategic improvisation

From the Latin ‘fundatio’, the term foundation allows to alluding to the action and the effect of founding (establishing, creating or building something). The concept is therefore associated with architecture and engineering. However, the notion of foundation transcends material building. The foundation of an organization, for example, refers to political or social interaction, far beyond its physical and material structure. This argument recalls “grassroots model” of strategies (Mintzberg and McHugh, 1985), it clearly adds an interactive dimension to strategy making, because it recognizes that the external context is an active part. Indeed it is not simply a “passive” environment to which to adapt, but spontaneous, flexible and dynamic. It is completely organic. Above all, strategic improvisation plays an important role to acknowledge its emergence and intervene when appropriate.

Foundations are elements whose purpose is to transmit the necessary subsidy from a fertile environment to the entire organic structure in which it is composed. Some foundations may also be recognized as a substructure, such as project management, where the scope plan

provides the basis for building project time and the estimated cost of project estimation. In the context of dynamic and complex organizations, strategic improvisation plays a key role as part of the project's planning as a "just-in-time strategy" (Weick, 2001) and in conception of action as it unfolds (Cunha et al., 1999; Cunha et al., 2003; Cunha et al., 2009). In the interconnection between the foundation and the capillarization is the strategic improvisation practice.

Improvisation as a combination for creativity, intuition and bricolage was defined as foundation, once these elements are considered the essence of this phenomenon and permeate all the levels (Baker, Miner and Eesley, 2003; Leybourne and Sadler-Smith, 2006). Conceptual dimensions such as extemporaneity, novelty and intentionality were specified as the foundation once the definition of OI provides these three dimensions as the core of improvisation (Cunha and Clegg, 2019).

Strategic improvisation practices can be seen as the "Sap" of the Tree from roots to branches feeds all levels of the organization. It promotes engagement with organizational strategy since the source that drives development is the same: adaptation, flexibility, creativity and innovation. SI is not limited to the position of "structuring", but is present on the "foundation" and "capillarization" of strategic practices. It was also found that SI is not necessarily a replacement for OI, but these two approaches act in the same dynamic context. In some research, the concepts of SI and OI may be confused due to the almost conceptual fusion between both approaches. However, one of the distinctions lies in the fact that the SI is performed with a greater focus on opportunity, self-efficacy and performance.

As a result of the proposed model, we highlight the fundamental aspects of the strategic improvisation tree: (i) The way to move forward in the organization through the spontaneity and fluidity through capillarization of concepts as it unfolds; (ii) The way to sustain strategy 'just-in-time'; and, (iii) The way to grounding and applying relevant concepts to the dynamic context and environmental change.

Conclusions

In this study, we have developed an integrative review that highlights key differences and concepts between organizational improvisation and strategic improvisation. The SI approach represents a new vibrant area for empirical and theoretical development. The result of a comprehensive synthesis of the literature is that new knowledge or perspective is created despite the fact that the review summarizes previous research. The review and critique of the

existing literature led to the representation of the strategic improvisation tree proposed in this study, which considers the relationship of OI and SI concepts in an integrative review.

On the one hand, strategic improvisation permeates all organizational levels, increasing opportunities and focusing on performance and effectiveness. SI acts at the root, trunk and branches of organizational practices as a comprehensive way to achieve better performance. The immediate response to the unexpected situation is not the priority in SI, however the performance achieved from the solution to the unexpected becomes fundamental in this perspective. From this IR, new ways of thinking about the field of strategic improvisation were highlighted from the perspective of dynamic and organic contexts.

On the other hand, organizational improvisation can be seen as a tool in response to unpredictable events (Best and Gooderham, 2015). OI has been attributed to an opportunity of exploring new ideas as a result of unexpected situations (Mac Nab and Worthley, 2012). In this sense, the OI approach strengthens an organization's response efforts and fosters a greater sense of resilience in crisis situations (Fifolt, et al., 2017). It is also featured in the convergence of design and performance (extemporaneity), the creation of some degree of novel action (novelty), and the deliberateness of design that is created during its own enactment (intentionality) approached by Giustiniano, Cunha and Clegg (2016).

While OI was considered a subset of innovation and experimentation (Du, Wu, Liu and Hackney, 2018) SI makes use of the experimentation process focusing on significant performance in dynamic contexts for organizational competitive advantage. Indeed, OI is a valuable initiative to explore opportunities outside the conventional fields, creating new ideas (Fisher and Amabile, 2009), while SI is concerned with recognizing the performance of action from this experience. These two perspectives are complementary, as OI seeks opportunities and experimentation in dynamic and unexpected contexts, and SI seeks to seize these opportunities to recognize the results achieved from improvised practice.

Three main contributions were identified in the strategic improvisation field, essential to dynamic organizations, with significant results. First, *presents strategic improvisation as a comprehensive way to achieve better performance*. Finding solutions and seizing opportunities is important in this process, however qualified performance from results is critical from this perspective. Secondly, *SI practices can be seen as the “sap” of the tree from roots to branches feeds all levels of the organization*. The process of supporting the plan in a dynamic context was recognized as structuring the strategy or macro objectives (trunk). Capillarization process is the main aspect of SI as a way to deal with ambiguities and divergences in a turbulent context (branches). SI plays an important role as a foundation to

acknowledge its emergence and intervene when appropriate (roots). Thirdly, *it demonstrates the differentiation of the OI and SI approach in organization studies*. One of the distinctions lies in the fact that the SI is performed with a greater focus on opportunity, self-efficacy and performance.

Managerial implications

Managing organizations in the context of change or turbulence is always challenging the managerial capacity to address uncertainty, policies, interest groups, and limited reasonableness. This makes strategic improvisation a crucial element of management in the powerful toolbox of managers. More than a science, management is an art and action. It requires creativity, flexibility, knowledge and agility. Autonomy and experimentation seem to be a promising path for managers to face dynamic environments. It is essential to maintain a space for improvisation, above all, strategically thinking about the main goal and new ways to improve performance.

The detailed formal plans prove to be limited and inefficient in this kind of environment. Under this context, managers should use the plan as a macro guideline seeking to adapt it with a focus on sustaining organizational strategies. The strategy can be sustained not by the longer plan detail but by the conceptual practices that are developed as the execution takes place. Strategic improvisation can be a fruitful way to seize opportunities, foster innovation and generate fluidity contributing to the improvement of organizational performance.

Suggestions for future research

Future research may examine how strategic improvisation permeates different organizational levels. Moreover, research questions are suggested for the development of the SI field, such as (i) To what extent do the types of environments in organizations influence the manifestation of the SI? (ii) How can different levels and degrees be applied in the SI approach? (iii) How are the elements of the strategic improvisation tree related to flexibility, creativity, bricolage and innovation? (iv) In what context can OI and SI differ in practice? (v) Is there any relationship between the effects of OI and the performance promoted by SI? It is highly suggested to explore the strategic improvisation tree model and its elements with possible relationships with improvisation constructs such as flexibility, creativity and spontaneity. This relationship can provide significant insights into this field of study.

Another way forward for future research is to examine the implications of strategy structuration by improvisation practices, including its effect on performance. In this perspective, it would be interesting to evaluate improvisation as the focus of sustaining the strategy. It can be also examined in detail individual factors such as the roles of different governance modes for the strategic improvisation, perceived levels and degrees, in managing dynamic organizations in the context of change. All of which contribute to the development of improvisation practices relevant for strategic management. The combination of responses from the OI and SI manifestations may provide additional insights into the field of improvisation.

References

- Abrantes, A.C.M., Passos, A.M., Cunha, M.P. and Santos, C.M. (2018). Bringing team improvisation to team adaptation: The combined role of shared temporal cognitions and team learning behaviors fostering team performance. *Journal of Business Research*, 84(1), 59-71.
- Adomako, S., Opoku, R. A. and Frimpong, K. (2018). Entrepreneurs' improvisational behavior and new venture performance: Firm-level and institutional contingencies. *Journal of Business Research*, 83(2), 10-18.
- Amabile, T. (1996). *Creativity in context*. Boulder, CO: Westview Press.
- Amabile, T. (1997). Motivating creativity in organizations: on doing what you love and loving what you do. *California Management Review*, Berkeley, 40(1), 39-58.
- Akgun, A.E., Byrne, J.C., Lynn, G.S. and Keskin, H. (2007). New product development in turbulent environments: impact of improvisation and unlearning on new product performance. *Journal of Engineering and Technology Management*, 24(3), 203-230.
- Akgün, A. E., Keskin, H. and Byrne, J. C. (2014). Complex adaptive systems theory and firm product innovativeness. *Journal of Engineering and Technology Management*, 31(1), 21-42.
- Aram, J.D. and Walochick, K. (1996). Improvisation and the Spanish manager. *International Studies of Management and Organization*, 26(4), 73-89.
- Bakar, H., Mahmood, R. and Ismail, N. (2015b). Effects of Knowledge Management and Strategic Improvisation on SME Performance in Malaysia. *Asian Social Science*, 11(9), 207-214.
- Baker, T., Miner, A.S. and Eesley, D.T. (2003). Improvising firms: bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255-276.
- Baker, T. and Nelson, R.E. (2005). Creating something from nothing: resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329-366.
- Baker, T. (2007). Resources in play: Bricolage in the Toy Store(y). *Journal of Business Venturing*, 22(5), 694-711.
- Balachandra, L., Crossan, M., Devin, L., Leary, K. and Patton, B. (2005). Improvisation and teaching negotiation: developing three essential skills. *Negotiation Journal*, 21(4), 435-441.
- Balogun, J., and Johnson, G. (2004). Organizational restructuring and middle manager sensemaking. *Academy of Management Journal*, 47(4), 523-549.
- Barrett, F.J. (1998). Creativity and improvisation in organizations: implications for organizational learning. *Organization Science*, 9(5), 605-622.
- Belitski, M. and Herzig, M. (2017). The Jam Session Model for Group Creativity and Innovative Technology. *The Journal of Technology Transfer*, 43(2), 506-521.

Bergh, D.D. and Lim, E.N.-K. (2008). Learning how to restructure: absorptive capacity and improvisational views of restructuring actions and performance. *Strategic Management Journal*, 29(6), 593-616.

Best, S. and Gooderham, P. (2015). Improvisation: A legitimate strategy in the face of adversity, *Small Enterprise Research*, 22(1), 49-68.

Bingham, C.B. and Eisenhardt, K.M. (2014). Heuristics in strategy and organizations: response to Vuori and Vuori. *Strategic Management Journal*, 35(11), 1698-1702.

Bouncken, R. B., Fredrich, V. and Pesch, R. (2016). Configurational answer to the ongoing riddle of formal and/or emergent planning practices. *Journal of Business Research*, 69(9), 3609-3615.

Charles, K. and Dawson, P. (2011). Dispersed change agency and the improvisation of strategies during processes of change. *Journal of Change Management*, 11(3), 329-351.

Ciborra, C.U. (1996). The platform organization: recombining strategies, structures, and surprises. *Organization Science*, 7(2), 103-118.

Ciborra, C.U. (1999). Notes on improvisation and time in organizations. *Accounting, Management & Information Technologies*, 9(1), 77-94.

Cooper, H. (1998). *Synthesizing research: A guide for literature reviews*. Thousand Oaks, California: Sage Publications.

Cooper, H. (2010). *Research Synthesis and Meta Analysis*, 4th edition. Applied Social Research Methods Series, Vol. 2, Sage Publication Inc, Thousand Oaks, CA, USA.

Crossan, M., Lane, H., White, R.E. and Klus, L. (1996). The improvising organization: where planning meets opportunity. *Organizational Dynamics*, 24(4), 20-35.

Crossan, M. and Sorrenti, M. (1997). *Making sense of improvisation*. In J. P. Walsh & A. S. Huff (Eds.), *Advances in Strategic Management*. Greenwich: JAI Press, pp. 155-180.

Crossan, M. and Sorrenti, M. (2002). *Making sense of improvisation*. In Kamoche, K., Cunha, M. and Cunha, J.V. (eds), *Organizational Improvisation*. London: Routledge, pp. 27-48.

Crossan, M. and Hurst, D. (2003). *Strategic renewal as improvisation: Reconciling the tension between exploration and exploitation*. Working paper. University of Western Ontario, Richard Ivey Business School.

Crossan, M., Cunha, M.P., Vera, D. and Cunha, J. (2005). Time and organizational improvisation. *Academy of Management Review*, 30(1), 129-145.

Cunha, M.P., Cunha, J.V. and Kamoche, K. (1999). Organizational improvisation: what, when, how and why. *International Journal of Management Reviews*, 1(3), 299-341.

- Cunha, M.P., Kamoche, K. and Cunha, R.C. (2003). Organizational improvisation and leadership: a field study in two computer-mediated settings. *International Studies of Management & Organization*, 33(1), 34-57.
- Cunha, M.P. and Cunha, J.V. (2006). Towards a complexity theory of strategy. *Management Decision*, 44(7), 839-850.
- Cunha, M.P., Rego, A. and Kamoche, K. (2009). Improvisation in service recovery. *Managing Service Quality*, 19(6), 657-669.
- Cunha, M.P., Clegg, S., Rego, A. and Neves, P., (2014). Organizational improvisation: from the constraint of strict tempo to the power of the avant-garde. *Creativity and Innovation Management*, 23(4), 359-373.
- Cunha, M.P., Neves, P., Clegg, S.R. and Rego, A. (2014). Tales of the unexpected: Discussing improvisational learning. *Management Learning*, 46(5), 511-529.
- Cunha, M.P., Neves, P., Clegg, S.R. and Rego, A. (2015). Tales of the unexpected: discussing improvisational learning. *Management Learning*, 46(5), 511-529.
- Cunha, M.P., Miner, A.S. and Antonacopolou, E. (2017). *Improvisation processes in Organizations*, in Langley, A. and Tsoukas, H. (Eds), *The Sage Handbook of Process Organization Studies*, Sage, Los Angeles, CA, pp. 559-573.
- Cunha, M.P. and Clegg, S. (2019). Improvisation in the learning organization: a defense of the infra-ordinary, *The Learning Organization*, 26(3), 238-251.
- Du, W. (Derek), Wu, J., Liu, S. and Hackney, R.A. (2018). Effective Organizational Improvisation in Information Systems Development: Insights from the Tencent Messaging System Development. *Information & Management*. 56(4), 614-624.
- Eisenhardt, K.M. and Tabrizi, B.N. (1995). Accelerating adaptive processes: product innovation in the global computing industry. *Administrative Science Quarterly*, 40(1), 84-110.
- Falkheimer, J. and Sandberg, K.G. (2018). The art of strategic improvisation. *Journal of Communication Management*, 22(2), 253-258.
- Fifolt, M., Wakelee, J., Eldridge-Auffant, L., Carpenter, R. and Hites, L. (2016). Addressing the Needs of Adults and Children with Disabilities through Emergency Preparedness and Organizational Improvisation. *Nonprofit Management and Leadership*, 27(3), 423-434.
- Fisher, C.M. and Amabile, T. (2009). *Creativity, improvisation and organizations*. In T. Richards, M. A. Runco, & S. Monger (Eds.), *The Routledge companion to creativity*. New York, NY: Routledge.
- Giddens, A. (1984). *The Constitution of Society*. Cambridge: Polity.
- Giustiniano, L., Cunha, M.P. and Clegg, S. (2016). The dark side of organizational improvisation: Lessons from the sinking of Costa Concordia. *Business Horizons*, 59(2), 223-232.

- Hadida, A.L., Tarvainen, W. and Rose, J. (2015). Organizational improvisation: A consolidating review and framework. *International Journal of Management Reviews*, 17(4), 437-459.
- Hamel, G. and Breen, B. (2007). *The Future of Management*. Boston, MA: Harvard Business School Press.
- Hatch, M.J. (1997). Jazzing up the theory of organisational improvisation. *Advances in Strategic Management*, 14(2), 181-191.
- Hatch, M.J. (1999). Exploring the empty spaces of organizing: how improvisational jazz helps redescribe organizational structure. *Organization Studies*, 20(1), 75-100.
- Hmieleski, K.M. and Corbett, A.C. (2008). The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing*, 23(4), 482-496.
- Hmieleski, K. M., Corbett, A. C. and Baron, R. A. (2013). Entrepreneurs' improvisational behavior and firm performance: A study of dispositional and environmental moderators. *Strategic Entrepreneurship Journal*, 7(2), 138-150.
- Hodgkinson, I. R., Hughes, P. and Arshad, D. (2016). Strategy development: Driving improvisation in Malaysia. *Journal of World Business*, 51(3), 379-390.
- Holbrook, M.B. (2007). Playing the changes on the jazz metaphor: an expanded conceptualization of music-, management-, and marketing-related themes. *Foundations and Trends in Marketing*, 2(3-4), 185-442.
- Hughes, P., Hodgkinson, I. R., Hughes, M. and Arshad, D. (2017). Explaining the entrepreneurial orientation–performance relationship in emerging economies: The intermediate roles of absorptive capacity and improvisation. *Asia Pacific Journal of Management*, 35(4), 1025-1053.
- Kamoche, K. and Cunha, M.P. (1999). Teamwork, knowledge-creation and improvisation. In Cunha, M.P. and Marques, C.A. (eds), *Readings on Organization Science*. Lisbon: Instituto Superior de Psicologia Aplicada, pp. 435-452.
- Kamoche, K. and Cunha, M.P. (2001). Minimal structures: from jazz improvisation to product innovation. *Organization Studies*, 22(5), 733-764.
- Kamoche, K., Cunha, M.P. and Cunha, R.C. (2003). Towards a theory of organizational improvisation: looking beyond the jazz metaphor. *Journal of Management Studies*, 40(8), 2023-2051.
- King, A.W. and Ranft, A.L. (2001). Capturing knowledge and knowing through improvisation: what managers can learn from the Thoracic Surgery Board certification process. *Journal of Management*, 27(3), 255-277.

Kirsch, L.J. (1996). The management of complex tasks in organizations: controlling the systems development process. *Organization Science*, 7(1), 1-21.

Kornberger, M. and Clegg, S. (2011). Strategy as performative practice. *Strategic Organization*, 9(2), 136-162.

Kyriakopoulos, K. (2011). Improvisation in product innovation: the contingent role of market information sources and memory types. *Organization Studies*, 32(8), 1051-1078.

Langley, A. (2009). *Studying processes in and around organizations*, in Buchanan, D. A., and Bryman, A. (eds.), *The Sage Handbook of Organizational Research Methods*, pp. 409-429. London: Sage.

Langley A., Smallman, C., Tsoukas, H. and Van De Ven, A. (2013). Process studies of change in organizations and management: Unveiling temporality, activity and flow. *Academy of Management Journal* 56(1), 1-13.

Larson, M. (2011). Innovation and creativity in festival organizations. *Journal of Hospitality Marketing & Management*, 20(3/4), 287-310.

Leybourne, S.A. (2006). Managing change by abandoning planning and embracing improvisation. *Journal of General Management*, 31(3), 11-29.

Leybourne, S.A. and Sadler-Smith, E. (2006). The role of intuition and improvisation in project management. *International Journal of Project Management*, 24(6), 483-492.

Leybourne, S.A. (2010b). Improvisation as a way of dealing with ambiguity and complexity. *Graziadio Business Review*, 13(3). Available at: <http://gbr.pepperdine.edu/2010/08/improvisation-as-a-way-of-dealing-with-ambiguity-and-complexity-3/>

Leybourne, S., Lynn, G. and Vendelø, M. (2014). Forms, Metaphors, and Themes: An Introduction to the Special Issue on Organizational Improvisation. *Creativity and Innovation Management*, 23(4), 353-358.

Leybourne, S.A. (2017). "It's all up here": adaptation and improvisation within the modern Project. *International Journal of Project Organisation and Management*, 9(3), 217-229.

Li, J. and Tang, Y. I. (2010). CEO hubris and firm risk taking in China: The moderating role of managerial discretion. *Academy of Management Journal*, 53(1), 45-68.

Liker, J. K., Haddad, C. J. and Karlin, J. (1999). Perspectives on technology and work organization. *Annual Review of Sociology*, 25, 575-596.

Liu, Y., Lv, D., Ying, Y., Arndt, F. and Wei, J. (2018). Improvisation for innovation: The contingent role of resource and structural factors in explaining innovation capability. *Technovation*, 74(75), 32-41.

- MacNab, B. R. and Worthley, R. (2012). Individual characteristics as predictors of cultural intelligence development: The relevance of self-efficacy. *International Journal of Intercultural Relations*, 36(1), 62-71.
- Magni, M., Proserpio, L., Hoegl, M. and Provera, B. (2009). The role of team behavioral integration and cohesion in shaping individual improvisation. *Research Policy*, 38(6), 1044-1053.
- Mahmood, R. and Bakar, H.A. (2016). Examining Strategic Improvisation and performance relationship in the SME: Moderating Role of Entrepreneurial Self-Efficacy. *International Business Management*. 10(13), 2535-2540.
- McGrath, R.G. (2010). Business models: A discovery driven approach. *Long Range Planning* 43(2), 247-261.
- Miner, A., Bassoff, P. and Moorman, C. (2001). Organizational improvisation and learning: a field study. *Administrative Science Quarterly*, 46(2), 304-337.
- Mintzberg, H. and McHugh, A. (1985). *Strategy formation in an adhocracy*. *Administrative Science Quarterly*, 30(2), 160-197.
- Moorman, C. and Miner, A. (1995). Walking the tightrope: improvisation and information in new product development. In *MSI Report*. Cambridge, MA: Marketing Science Institute, pp. 95-101.
- Moorman, C. and Miner, A. (1997). The impact of organizational memory on new product performance and creativity. *Journal of Marketing Research*, 34(1), 91-107.
- Moorman, C. and Miner, A. (1998a). The convergence between planning and execution: improvisation in new product development. *Journal of Marketing*, 62(3), 1-20.
- Moorman, C. and Miner, A. (1998b). Organizational improvisation and organisational memory. *Academy of Management Review*, 23(4), 698-723.
- Nisula, A.-M., and Kianto, A. (2015). The role of knowledge management practices in supporting employee capacity for improvisation. *The International Journal of Human Resource Management*, 27(17), 1920-1937.
- Offenhuber, D. and Schechtner, K. (2018). Improstructure - an improvisational perspective on smart infrastructure governance. *Cities*, 72(4), 329-338.
- Orlikowski, W.J. (1996). Improvising organizational transformation over time: a situated change perspective. *Information Systems Research*, 7(1), 63-92.
- Orlikowski, W.J. and Hofman, J.D. (1997). An improvisational model for change management: the case of groupware technologies. *Sloan Management Review*, 38(2), 11-21.
- Pavlou, P.A. and El Sawy, O.A. (2010). The 'third hand': IT-enabled competitive advantage in turbulence through improvisational capabilities. *Information Systems Research*, 21(3), 443-471.

Perry, L.T. (1991). Strategic improvising: how to formulate and implement competitive strategies in concert. *Organizational Dynamics*, 19(4), 51-64.

Peters, M.D., Wieder, B. and Sutton, S.G. (2018). Organizational improvisation and the reduced usefulness of performance measurement BI functionalities. *International Journal of Accounting Information Systems*, 29(C), 1-15.

Plowman, D.A., Baker, L.T., Beck, T.E., Kulkarni, M., Solansky, S.T. and Travis, D.V. (2007). Radical change accidentally: the emergence and amplification of small change. *Academy of Management Journal*, 50(3), 515-543.

Ranson, S., Hinings, B. and Greenwood, R.T. (1980). The structuring of organizational structures. *Administrative Science Quarterly*, 25(1), 1-17.

Sawyer, K. (1992). Improvisational creativity: an analysis of jazz performance. *Creativity Research Journal*, 5(3), 253-263.

Scaglione, V.L.T., Meyer, V. and Mamédio, D.F. (2019). Improvisation in Higher Education Management: Coping with Complexity and Organizational Dynamics. *Global Journal of Flexible Systems Management*, 20(4), 291-302.

Senyard, J., Baker, T., Steffens, P. and Davidsson, P. (2013). Bricolage as a Path to Innovativeness for Resource-Constrained New Firms. *Journal of Product Innovation Management*, 31(2), 211-230.

Smets, M., Morris, T. and Greenwood, R. (2012). *From practice to field: a multilevel model of practice driven institutional change*. *Academy of Management Journal*, 55(4), 877-904.

Smith, V. (1997). New forms of work organization. *Annual Review of Sociology*, 23(1), 315-339.

Süße, T. (2015). Improvisation as a Prerequisite for the Dynamic Interplay of Production and Service in PSS: Insights of an Organizational Design Principle and a Game-based Learning Approach. *Procedia CIRP*, 30, 366-371.

Süße, T. (2016). Organizing the Integration Demands Across PSS Life Cycles: Towards a Specific form of Improvisation for Creating Customer-specific Solutions. *Procedia CIRP*, 47, 270-275.

Tasavori, M., Kwong, C. and Pruthi, S. (2018). Resource bricolagem and growth of product and market scope in social enterprises, *Entrepreneurship & Regional Development*, 30(3-4), 336-361.

Teoh, S. Y., Wickramasinghe, N. and Pan, S. L. (2012). A bricolage perspective on healthcare information systems design: an improvisation model. *The DATA BASE for Advances in Information Systems*, 43(3), 47-61.

Thomke, S.H. (1997). The role of flexibility in the development of new products: An empirical study. *Research Policy*, 26(1), 105-119.

- Tsoukas H. and Chia R. (2002). On organizational becoming: Rethinking organizational change. *Organization Science* 13(5), 567-582.
- Torraco, R.J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356-367.
- Valaei, N. and Rezaei, S. (2016). Does Web 2.0 utilisation lead to knowledge quality, improvisational creativity, compositional creativity, and innovation in small and medium-sized enterprises? A sense-making perspective. *Technology Analysis & Strategic Management*, 29(4), 381-394.
- Valaei, N., Rezaei, S. and Emami, M. (2017). Explorative learning strategy and its impact on creativity and innovation. *Business Process Management Journal*, 23(5), 957-983.
- Vendelø, M.T. (2009). Improvisation and learning in organisations – an opportunity for future empirical research. *Management Learning*, 40(4), 449-456.
- Vera, D. and Crossan, M. (2004). Theatrical improvisation: lessons for organizations. *Organization Studies*, 25(5), 727-749.
- Vera, D. and Crossan, M.M. (2005). Improvisation and innovative performance in teams. *Organization Science*, 16(3), 203-224.
- Vera, D., Crossan, M., Rerup, C. and Werner, S. (2014). ‘Thinking before acting’ or ‘acting before thinking’: Antecedents of individual action propensity in work situations. *Journal of Management Studies*, 51(4), 603-633.
- Vera, D., Nemanich, L., Vélez-Castrillón, S. and Werner, S. (2016). Knowledge-Based and Contextual Factors Associated with R&D Teams’ Improvisation Capability. *Journal of Management*, 42(7), 1874-1903.
- Webb, G. and Chevreau, F.R. (2006). Planning to improvise: the importance of creativity and flexibility in crisis response. *International Journal of Emergency Management*, 3(1), 8-9.
- Weick, K.E. (1993b). The collapse of sensemaking in organizations: the Mann Gulch disaster. *Administrative Science Quarterly*, 38(4), 628-652.
- Weick, K.E. (1995). *Sensemaking in organizations*. London: Sage.
- Weick, K.E. (1996). Drop your tools: an allegory for organizational studies. *Administrative Science Quarterly*, 41(2), 301-313.
- Weick, K.E. (2001). *Making Sense of the Organization*. Oxford: Blackwell.
- Whalen, P. and Boush, D. (2014). Why, how and to what effect do firms deviate from their intended marketing plans? *European Journal of Marketing*, 48(3/4), 453-476.
- Whittemore, R. and Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546-553.

Whittemore, R. (2007). Rigour in Integrative Reviews. In *Reviewing Research Evidence for Nursing Practice* (Webb C, Roe B eds), Blackwell. Oxford, UK, pp. 149-156.

Zack, M. (2000). Jazz improvisation and organizing: once more from the top. *Organization Science*, 11(2), 227-234.

Zheng, Y., Venters, W. and Cornford, T. (2011). Collective agility, paradox and organizational improvisation: the development of a particle physics grid. *Information Systems Journal*, 21(4), 303-333.

TABLES

Table 1 - OI articles published per year

Year	Published Quantity
2014	07
2015	04
2016	06
2017	04
2018	08
2019	02
Total	31

Table 2 - SI articles published per year

Year	Published Quantity
2006	01
2012	01
2016	01
2018	01
Total	04

Table 3 – Results of the SI integrative review

<i>Authors (Year)</i>	<i>SI approach described as...</i>	<i>Thematic Axes</i>
Falkheimer, J. and Sandberg, K. (2018)	A situational interpretation within a given framework. It combines the need for planning and structure with creative action. It was related three interconnected parts: a clear framework (composition), a professional interpretation (interpretation) and a situational adaptation based on possibilities and conditions (improvisation).	<ul style="list-style-type: none"> - Collaborative project - Composition, Interpretation and Improvisation - Communication
Mahmood, R. and Bakar, H. (2016)	A form of intuition that guides action spontaneously, through something done or produced in the spur of the moment, and not from a deliberate process of thought and evaluation. Entrepreneurial self-efficacy plays a moderating role in the relationship between strategic improvisation and performance.	<ul style="list-style-type: none"> - Performance - Small and medium enterprises - Entrepreneurial self-efficacy
Teoh, S., Wickramasinghe, N. and Pan, S. (2012)	The ability to assemble elements, based on simple principles, to yield an original composition. A conceptual model of strategic improvisation is proposed that couples with network, structure and institutional bricolage to execute a “resource-time-effort” model.	<ul style="list-style-type: none"> - Bricolage - System Design - Improvisation
Cunha, M.P. and Cunha, J.V. (2006)	Referring to opportunity-guided competitive strategies. Strategic improvisation leads to a faster response to changes in the competitive environment. Improvisation allows firms to rapidly take advantage of opportunities or preempt threats. Minimal structures are a necessary condition for Strategic Improvisation.	<ul style="list-style-type: none"> - Complexity theory - Strategic management - Organizational processes - Minimal structures

Table 4 – Results of the OI integrative review

<i>Authors (Year)</i>	<i>OI approach described as...</i>	<i>Thematic Axes</i>
Cunha, M.P., and Clegg, S. (2019)	A paradoxical practice that belongs to the domain of infra-ordinary rather than the extraordinary. It incorporates the dimensions: extemporaneity, novelty and intentionality.	- Learning organizations - Improvisation - Infra-ordinary
Scaglione, V., Meyer Jr., V., and Mamédio, D. (2019)	A way of responding to the managerial challenge of dynamic and complex organisations, characterized by spontaneity, creativity and flexibility.	- Complex systems - Organizational dynamics - Organizational Improvisation
Abrantes, A.C.M., Passos, A.M., Cunha, M.P. and Santos, C.M. (2018)	By considering the merger between design and execution within an adaptation process. Team improvised adaptation behaviors mediate the relationship between shared temporal cognitions and team performance, and that team learning behaviors moderate this mediation.	- Shared temporal cognition - Team improvised adaptation - Performance
Adomako, S., Opoku, R.A. and Frimpong, K. (2018)	The ability of entrepreneurs to extemporaneously create and execute strategic new plans (i.e., improvise), moderating effect of financial resource capability on the relationship between entrepreneurs' improvisational and new venture performance.	- Improvisation - Upper echelons - Financial resource capability - Institutional support
Belitski, M. and Herzig, M. (2018)	A concept of organizational innovation rooted in factors as an effective toolbox: expertise, community support, evaluation systems, leadership and sideman, democratic and collaborative culture, mentoring systems.	- Organizational improvisation - Creativity - Group creativity - Innovative Technology
Du W.D., Wu J., Liu S., and Hackney R.A. (2018)	A subset of innovation and experimentation. Effective improvisation in Information Systems Development (ISD), based on innovation, agility, and productivity improvement.	- ISD - Organizational Improvisation - Effective Improvisation
Liu Y., Lv D., Ying Y., Arndt F., and Wei J. (2018)	Enhancing innovation capacity when companies have a decentralized but formalized structure or pursue the dual goals of maximizing resource shortages and minimizing investment irreversibility.	- Improvisation - Innovation capabilities - Formalization - Resource slack
Offenhuber, D., and Schechtner, K. (2018)	The notion of improstructure as a conceptual model for understanding infrastructure governance as an improvisational process of “call and response” among a diverse set of actors. It considers informality and improvisation not outside, but instead often located inside formal systems of governance.	- Organizational improvisation - Improstructure - Infrastructure governance
Peters, M.D., Wieder, B., and Sutton, S.G. (2018)	Manifested in two specific competencies: strategic momentum (for enacting strategic action) and organizational flexibility (for enacting adaptive action).	- Business intelligence - Organizational improvisation - Strategic momentum
Tasavori, M., Kwong, C., and Pruthi, S. (2018)	The emerging and interdependent relationship between business decisions within a changing context. It is not a static, but continuous, process that enables social enterprise to evolve and create new social value in their use of bricolage.	- Bricolage - Improvisation - Resource constraints - Market expansion
Fifolt, M., Wakelee, J., Eldridge-Auffant, L., Carpenter, R., and Hites, L. (2017)	The combination of structure and improvisation in emergency planning. This strengthens an organization's response efforts and fosters a greater sense of resilience in crisis situations.	- Emergency planning - Crisis planning - Organizational Improvisation
Hughes, P., Hodgkinson, I.R., Hughes, M., and Arshad, D. (2017)	The abandonment of a deliberate process to gather and deploy information quickly, not deliberate, but as an emergent process of learning.	- Entrepreneurial orientation - Absorptive capacity - Improvisation - Emerging economies
Leybourne, S.A. (2017)	A proportion of activity around the contemporary and emerging practices based around the recognised components of improvised work such as intuition, creativity, and adaptation.	- Improvisation - Adaptation - Project management - Ambiguity and Uncertainty
Valaei, N., Rezaei, S., and Emami, M. (2017)	The need for insight, rapid experimentation and evolutionary learning. Improvisational creativity mediates the relationship between explorative learning and innovation.	- Explorative learning strategy - Improvisational creativity - Innovation

Bouncken, R.B., Fredrich, V., and Pesch, R. (2016)	The emphasis on improvisation, intuition and trial and error, which allow for advantages in complex and dynamic environments.	<ul style="list-style-type: none"> - Strategic planning - Configurational analysis - Firm performance
Giustiniano L., Cunha, M.P., and Clegg, S. (2016)	Three conceptual dimensions: 1. the convergence of design and performance (extemporaneity); 2. the creation of some degree of novel action (novelty); and 3. the deliberateness of the design that is created during its own enactment (intentionality). Also, improvisational referent.	<ul style="list-style-type: none"> - Organizational improvisation - High-reliability organizations - Managerial illusion - Authority - Costa Concordia
Hodgkinson, I.R., Hughes, P., and Arshad, D. (2016)	A means to overcome barriers to change, such as inertial forces in emerging economies, facilitating strategy emergence.	<ul style="list-style-type: none"> - Emerging economy - Improvisation - Strategy and Turbulence
Suesse, T. (2016)	An action-oriented concept of ad hoc problem-solving. OI shows higher relevance in the context of integrated solution offerings and, thus, can be an organizational coping mechanism to meet integration demands in PSS.	<ul style="list-style-type: none"> - Servitization - Organizational improvisation - Form of organizing
Valaei, N., and Rezaei, S. (2016)	Improvisational creativity and compositional creativity as a result of knowledge quality (KQ) through driver factor of Web 2.0 utilisation.	<ul style="list-style-type: none"> - Web 2.0 utilisation - Knowledge quality - Creativity and innovation
Vera, D., Nemanich, L., Velez-Castrillon, S., Werner, S. (2016)	A multipurpose capability with both operational and dynamic purposes. This capability can help high-performing R&D teams, tasked with the pursuit of new knowledge and the application of that knowledge, to exploit new opportunities, become more innovative, and decrease cycle time.	<ul style="list-style-type: none"> - Improvisation - R&D teams - Dynamic capabilities - Minimal structures
Best, S., and Gooderham, P. (2015)	A tool in response to unpredictable events that if not resolved could have an adverse effect on a business. It can be seen as an incremental method of response and control to unanticipated events.	<ul style="list-style-type: none"> - Improvisation entrepreneurship - Start-up - Business planning
Hadida, A.L., Tarvainen, W., and Rose, J. (2015)	A new consolidating framework combining degrees (minor, bounded and structural) and levels (individual, interpersonal and organizational) of improvisation.	<ul style="list-style-type: none"> - Organizational Improvisation - Degree/Level of improvisation
Nisula, A., and Kianto, A. (2015)	The ability of an individual to deal in complex and unexpected situations in a creative, entrepreneurial, contextual and professional manner. It represents more dynamic, innovative behavior.	<ul style="list-style-type: none"> - Employee improvisation - HR management - Knowledge management - Public organisation
Suesse, T. (2015)	A spontaneous as well as creative process of actions that follows a specific objective, such as the generation of new solutions for new customer problems in PSS.	<ul style="list-style-type: none"> - Product-service systems - Improvisational learning - Contradictions and Tensions
Akgun, A., Keskin, H., and Byrne, J. (2014)	Generating local actions in a process of widespread change in a turbulent environment, planning and acting simultaneously. Emergence variables partially mediate the relationship between the CAS context and firm product innovativeness.	<ul style="list-style-type: none"> - Complex adaptive systems - Emergence - Product innovativeness - Product development
Cunha M.P., Clegg S., Rego A., and Neves, P. (2014)	Different forms of OI (ad-hoc, covert, provocative and managed). Improvisational abilities therefore result from need rather than from choice, as a product of resource constraints encoded in local cultural dispositions. It is a process involving more or less spontaneous and creative responses with variable political consequences for the circuitry of power.	<ul style="list-style-type: none"> - Forms of Organizational Improvisation - Improvisational ability - Power - Political component
Cunha, M.P., Neves, P., Clegg, S.R., and Rego, A. (2014)	A polymorphous process, assuming many forms in organizations (semi-structured, episodic, subversive, resistive) in which these forms interrelate in improvisational sequences.	<ul style="list-style-type: none"> - Improvisation - Improvisational forms - Improvisational learning - Politics unexpected
Leybourne, S., Lynn, G., and Vendelø, M.T. (2014)	An important component in achieving new and novel tasks and activities, in dealing with emergent requirements, and in the development and delivery of new products and services.	<ul style="list-style-type: none"> - Innovative practices - Creativity - Innovation - Organizational improvisation
Senyard, J., Baker, T., Steffens, P., and Davidsson, P. (2014)	"Bricolage" construct defined as making do by applying combinations of the resources at hand to new problems and opportunities.	<ul style="list-style-type: none"> - Bricolage - Innovativeness - Processes of "recombination"

Vera, D., Crossan, M., Rerup, C., and Werner, S. (2014)	The idea of 'acting before thinking' and 'thinking before acting' at the individual level united the distinction between 'improvising' a competitive move or 'planning' a competitive move.	<ul style="list-style-type: none"> - Action propensity - Individual differences - Locomotion assessment
Whalen, P.S., and Boush, D.M. (2014)	A new product and process outcomes. There is an optimal level of post-plan improvisation, that results from changes in the external macro-environment.	<ul style="list-style-type: none"> - Implementation - Marketing planning - Post-plan improvisation

Table 5 – Categorized theoretical basis

	<i>Main Concepts of Improvisation</i>	<i>Authors</i>
Branches	Improvisation as Spontaneous Process	Crossan et al. (2005); Vera and Crossan (2005); Magni et al. (2009)
	Improvisation in processes of change	Orlikowski (1996); Tsoukas and Chia (2002); Balachandra et al. (2005); Pavlou and El Sawy (2010); Charles and Dawson (2011); Smets et al. (2012); Langley et al. (2013)
	Improvisational behavior	Magni Proserpio, Hoegt and Provera (2009); Hmieleski, Corbett and Baron (2013)
	Improvisational process: Macro and micro improvisation	Cunha, Miner and Antonacopoulou (2017)
	Improvisation and unlearning	Akgun, Byrne, Lynn and Keskin (2007)
	Learning How to Improvise	Cunha et al. (1999); Hatch (1999); Bergh and Lim (2008)
	Improvisation as a way of dealing with ambiguity and complexity	Leybourne (2010b)
	Improvisation in coping with the Unexpected	Balachandra et al. (2005); Webb and Chevreau (2006); Magni et al. (2009)
	Creativity, Improvisation and Innovation	Sawyer (1992); Orlikowski and Hofman (1997); Barrett (1998); Hamel and Breen (2007); Larson (2011)
	Simultaneous conception and execution (real-time planning)	Ciborra (1996); Baker et al. (2003); Webb and Chevreau (2006); Zheng et al. (2011)
	Improvisation create value from unexpected opportunities	Crossan et al. (1996); Weick (1996; 2001)
	Emergent problem-solving	Charles and Dawson (2011)
	Conception of action as it unfolds	Cunha et al. (1999); Cunha et al. (2003); Cunha et al. (2009)
	Performing activities in non-routine or unexpected ways	Webb and Chevreau (2006)
	Responding quickly, flexibly and self-reflexively to changes	Holbrook (2007)
	Infra-ordinary process of Improvisation	Cunha, M.P., and Clegg, S. (2019)
	Degree/Level of Improvisation	Hadida, Tarvainen and Rose (2015)
	Convergence of composition and execution of novel action	Moorman and Miner (1998a, 1998b); Kamoche and Cunha (1999, 2001); Miner et al. (2001); Crossan et al. (2005); Hmieleski and Corbett (2008)
	Flexible and extemporaneous action	Moorman and Miner (1995); Kirsch (1996); Ciborra (1999); Kamoche and Cunha (2001)
	Improvisational learning and knowledge capture	Hatch (1997); King and Ranft (2001); Miner et al. (2001); Crossan and Sorrenti (2002); Bergh and Lim (2008); Vendelø (2009); Cunha, Neves, Clegg and Rego (2014)
Trunk	Improvisation in learning organization	Cunha and Clegg (2019)
	Post-plan improvisation	Whalen and Boush (2014)
	Improvisation as Minimal Structures	Kamoche and Cunha (2001); Plowman et al. (2007); Cunha et al. (2009)
	Emerging structures	Zack (2000)
	Improstructure	Offenhuber and Schechtner (2018)
Roots	Improvisation views of restructuring actions and performance	Balogun and Johnson (2004); Bergh and Lim (2008)
	Structuration perspective	Ranson et al. (1980); Kamoche et al. (2003)
	Improvisation as part of Planning	Crossan, Lane, White and Klus (1996); Moorman and Miner (1998a); Leybourne (2006); Akgun et al. (2007)
	Improvisation as ‘just-in-time strategy’	Weick (2001)
	Improvisation as Substitute of Strategy	Weick (1993b)
	Improvisation as a combination for Creativity, Intuition and Bricolage	Baker, Miner and Eesley (2003); Leybourne and Sadler-Smith (2006)

Organizational Improvisation (concepts)	Cunha, Cunha and Kamoche (1999) Kamoche, Cunha and Cunha (2003)
Forms of Improvisation (semi-structured, episodic, subversive and resistive)	Cunha, M.P., Neves, P., Clegg, S.R., and Rego, A. (2014)
Forms of Organizational Improvisation (ad-hoc, covert, provocative, managed)	Cunha M.P., Clegg S., Rego A., and Neves, P. (2014)
Conceptual dimensions: extemporaneity, novelty and intentionality	Giustiniano et al. (2016); Cunha and Clegg (2019)
Improvisation as a mindset for innovation	Eisenhardt and Tabrizi (1995); Vera and Crossan (2005)

FIGURES

Figure 1 – Diagram of data collection in IR process

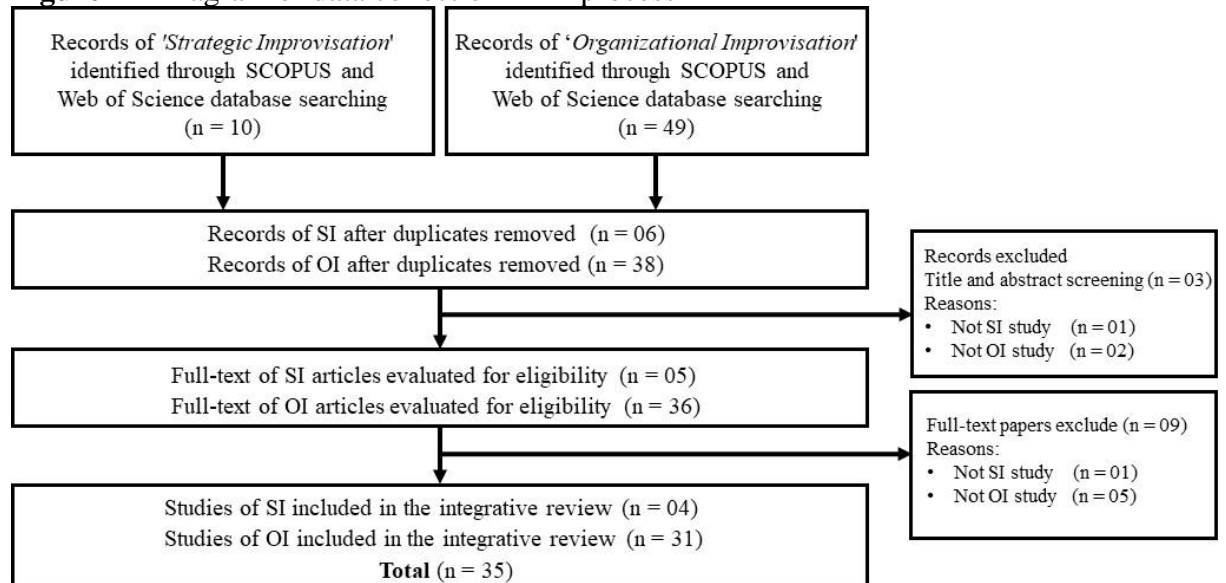


Figure 2 – Strategic Improvisation Tree

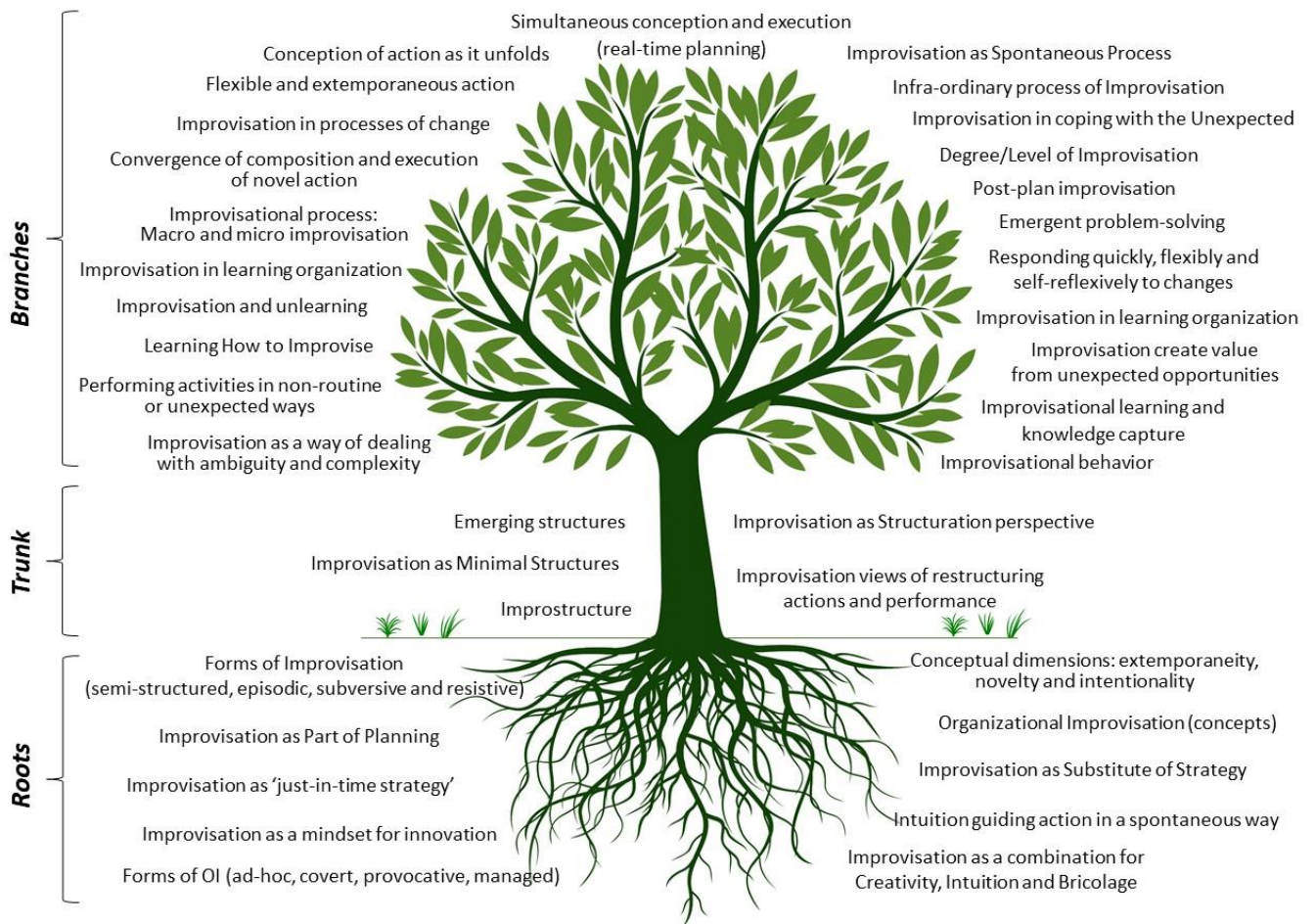


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2.3 PAPER 03 – STRATEGIC IMPROVISATION AS A DYNAMIC PERSPECTIVE

Strategic improvisation as a dynamic perspective for managing innovation in higher education institutions

Abstract

This study aims to explore strategic improvisation as a dynamic capability in the management of innovation projects in a dynamic organization, more specifically in a Higher Education Institution (HEI). The dynamic capability was based on the implementation of the academic innovation project, with valuable strategic importance for reinventing and evolving in a competitive environment aiming to improve the teaching and learning process. The results revealed that the interrelationship between groups and organizational units, through the common objective established, although with a different mindset and technical configurations, developed an articulate capability. These distinctive configurations of institutional areas enhanced engagement by requiring greater interdependence, especially with regard to the experience of another area. Collective learning took place through the development of strategic improvisation as an experienced building capability. The dynamic capability was promoted through the optimization process, political alignment, finding solutions and experience building process. Autonomy, collaboration, and trust were essential elements as a "roadmap" for establishing a fertile path for strategic improvisation. This study highlights four main contributions: (i) it presents multiple dimensions of SI as dynamic capability in innovation project (adaptive, articulation, innovation and experience building capabilities); (ii) a conceptual model is proposed that integrates SI and dynamic capability into its different aspects; (iii) the existence of an important capability as SI to manage innovation projects in the academic environment; and, (iv) managerial implications of dynamic SI capability in the context of dynamic organizations.

Keywords: strategic improvisation; dynamic capability; emerging strategy; higher education; organizational dynamics.

Introduction

Dynamic, unpredictable and nonlinear environments of complex organizations demand new abilities and competencies that are more appropriate to the ever-changing reality of modern organizations. In a rapidly changing environment, strategic improvisation (SI) is valuable as a dynamic capability to promote competitive advantage in uncertain and unpredictable contexts. Improvisation is seen as a phenomenon inherent to complex organizations, in which reality overlaps forecast and control attempts (Cunha, 2005). These organizations, in order to improvise, need “insight, rapid experimentation and evolutionary learning” (McGrath, 2010, p. 247). Higher education institutions (HEIs) are one such type of organization that needs to reform and restructure their management in order to become more dynamic and responsive to the needs of the global knowledge-based society (Keller, 2008; Marginson, 2010).

Some research has extensively stated that sustained innovative performance in organizations is the result of exploiting new resources along with new resources (Chen et al., 2009; Wang and Hsu, 2014). An organization that engages in exploratory innovation characterizes its behavior by integrating research, discovery and experimentation into its system (Jansen et al., 2006). The ability to improvise will not only solve the problem but also give them the ability to capitalize on opportunities that will move the organisations forward, as a result of their novel strategic decisions (Crossan and Hurst, 2003; Hmieleski et al., 2013). Improvisation has been discussed in a wide range of contexts, from the emergency response (Weick, 1993, Bechky and Okhuysen, 2011) to restructuring (Bergh and Lim, 2008) and technology-based change (Orlikowski, 2000).

Increasingly, improvisation is being described as a multipurpose capability (Vera et al., 2016). In this study, improvisation capability is defined as the strategic ability to act spontaneously in an attempt to provide outcomes as a way to increase performance. Being a dynamic capability, strategic improvisation is intended and has a purpose (Helfat et al., 2007), more specifically aimed at promoting competitive advantage. In short, SI as a dynamic capability is defined as the spontaneous ability and competency to promote competitive advantage by increasing organizational performance.

The purpose of this study is to explore to what extent can strategic improvisation be considered a dynamic capability in the implementation of the academic innovation project. The organization under study is a nonprofit private and traditional university, located in the south of Brazil, and recognized by its tradition. Ethnography was performed by three years of research, which conducted participant observation, interviews and documentary analysis of an innovation project in the HEI. Today, the university faces challenges such as developing new

competencies for management and academic professionals to achieve better organizational performance. The complex nature of HEIs, such as the plurality of agents, the speed of disruptions and the acceleration of innovations make academic management of strategic importance as a way to respond to internal and external challenges.

Four main contributions to the SI field of research are presented: (i) it presents multiple dimensions of SI as dynamic capability (adaptive, articulation, innovation and experience building capabilities); (ii) a conceptual model is proposed and integrates SI and dynamic capability into its different aspects; (iii) the existence of an important capability as SI to manage innovation projects in the academic environment; and, (iv) managerial implications of dynamic SI capability in the context of dynamic organizations. The paper is organized as follows: First, the theoretical foundations are based on concepts of strategic improvisation and dynamic capability. Second, the ethnographic method adopted in this research is described. Third, the findings of the analysis are presented. Fourth, a discussion is provided through a proposed conceptual model. Finally, the managerial implications and suggestions for future research are followed by the conclusion.

Theoretical Foundation

Dynamic Capability and Strategic Improvisation

Organizations need to find ways to survive in unpredictable, dynamic and rapidly changing environments. The phenomenon of dynamic capabilities (DCs) in organizations constitutes a wide interest for researchers of management, more specifically of strategic management (Mamédio et al., 2019). The DCs are defined as the ability of constantly integrating, reconfiguring, renewing and re-creating internal and external resources in response to dynamic environments (Teece et al., 1997) and also to rapidly changing environments (Eisenhardt and Martin, 2000).

DC research is still relatively new, despite the number of articles published (Teece, 2012; Peteraf et al., 2013). The dynamic capability framework has been applied to many types of firms and it has been suggested that future research should identify new types of firms for which the concept may be useful (Barreto, 2010). In addition, no existing study addresses response change capabilities and dynamic capabilities, which “remain an obvious candidate for future research” (Teece, 2012, p. 1397). DC enables an organization to handle the changing and dynamic environment by adapting its operational resources, internal resource base, or external environment resources (Winter, 2003; Helfat and Winter, 2011). The ability

to solve a problem is a substantial capacity, while the ability to change the way an organization solves its problems is an available capacity (Zahra et al., 2006).

Malik (2008) proposed a DC framework that explains the logic of how companies can associate appropriate strategies and dynamic capabilities to achieve higher levels of evolutionary adaptation. The main found is that companies with weak core capabilities but strong complementary capabilities can improve their evolutionary adaptations by adopting strategy building relational dynamic capabilities. Significant relationships between dynamic capabilities and innovation performance were found in networked environments, while the ability to combine knowledge played a mediating role in this relationship (Zheng et al., 2011).

The "integrative capability" concept (Jiang et al., 2015) is an important mediator in the relationship between operational capabilities and organizational performance. Integrative capability has been shown to have a significant direct impact on an organization's performance and an indirect impact through the creation of new operational capabilities. Results show that the manager's integrative powers, external linkages, experience coding, and ambiguity have positive effects on the dynamic articulation of knowledge (Lee et al., 2011). The study supported these dynamic capabilities as a way of learning and a process of articulation of dynamic knowledge.

The environment is also critical to the dynamic capabilities framework (Teece et al., 1997; Davis et al., 2009; Dixon et al., 2010). DC view represents an appropriate framework for the development of a theory of organizational change in turbulent environments (Teece, et al. 1997; Eisenhardt and Martin 2000). Studies have argued that dynamic capabilities apply not only to more stable environments (Zollo and Winter, 2002) but also to rapidly and moderately changing environments (Eisenhardt and Martin, 2000). Another study demonstrated that DC can give the firm a competitive advantage, but this effect is contingent on the level of dynamism of the firm's external environment (Schilke, 2014). The results support the explanation that DCs are more strongly associated with a competitive advantage in moderately dynamic environments, than in stable or highly dynamic environments. This study uses the dynamic capabilities framework to explore the strategic improvisation on the implementation of an innovation project in HEI.

Strategic improvisation is a multipurpose capability (Helfat and Winter, 2011), highlighted in this study as a capability for operational, strategic and political purposes. Weick (2001, p. 301) notes that "even if organizations are capable of improvising, it is not clear they need to do it". Moreover, how do organizations strategically improvise to achieve competitive advantage? As the ability of organizational leaders to rapidly and creatively use

their organizations' capabilities to seize business opportunities, strategic improvisation can be viewed as a dynamic capability. SI acts in this context of change and innovation with a focus on seizing opportunities to generate competitive advantage. It is a capability because improvisational actions are collective, repeatable and purposeful (Pavlou and El Sawy 2010).

Moreover, the differential of the approach of strategic improvisation as a dynamic capability, above all, is the ability to solve problems and seize opportunities as a way to generate competitive advantage and better organizational performance. Strategic improvisation capability can help high-performance teams, tasked with the pursuit of new knowledge and the application of that knowledge, to exploit new opportunities for the advantage of a business, become more innovative (Vera et al., 2016).

The dynamic capabilities of strategic improvisation are the abilities of organizations to handle complex and unexpected situations in a creative, entrepreneurial, contextual, and professional manner to foster competitive advantage. This purpose is clear and the effort is stated to achieve better performance. It represents a more dynamic and real-time innovative behavior (Nisula and Kianto, 2015). As a dynamic capability, strategic improvisation implies a source for the reconfiguration of individual capacities, organizational routines, and knowledge in order to develop new organizational principles and new solutions to new problems (Vera and Crossan, 2007).

Methodology

Ethnography was adopted (Spradley, 2016) in both the methodological approach and the analytical perspective of social research (Van Maanen, 2011). This method is significant for this study to experience strategic improvisation as a dynamic capability in a complex organization such as a higher education institution. It is an interpretive craft, focused more on 'how' and 'why' than on 'how much' or 'how many' (Van Maanen, 2011). It occurs naturally in the field, involving the participant researcher directly in the scenario (Brewer, 2005).

The purpose of this study is to explore "To what extent can strategic improvisation be considered a dynamic capability in an innovation project in the academic environment?" The organization under study is a nonprofit private university, located in the south of Brazil, composed of four campuses with approximately 25,000 students, and recognized by its tradition. This organization was selected for analysis by the author's opportunity to follow through on the transformation of the academic innovation project for three years from the perspective of strategic improvisation. The anonymity of the university has been preserved.

Methodological rigor was preserved by refining the researcher's perspective and insights obtained validated by the project manager.

The selection of this particular project is due to the strategic relevance to the university as demand for academic innovation, focusing on student education to solve real and complex problems of 21st century challenges. The University's Innovation Program focus of this study was funded for \$5 million over three years, divided into six implementation phases, and was segmented into three major projects: methodological innovation in teaching and learning, multidimensional course evaluation, and intelligent management of academic programs. This project involved the entire university and had the purpose of coping with internal and external challenges. Internally, seeking greater efficiency and effectiveness, while externally, adapting to the dynamic, uncertain and competitive environment. It included all areas of knowledge within the academic sector, administrative and operational management promoting a change culture in the academic area. In this study, culture simply refers to the meanings and practices produced, sustained, and altered through interaction, and ethnography is the study and representation of culture as used by particular people, in particular places, at particular times (Van Maanen, 2011).

[Insert Figure 1 about here]

Data Collection

Fifty-one ethnographic interviews (Spradley, 2016) were conducted to identify the context of managers' perception in implementing the strategy, analyzing improvisation practices, unexpected decisions and actions, emergency practices and surprises during project management. The selection of respondents was made by non-probabilistic sampling, considering the interest of the members directly involved in the implementation of the project under analysis. The interviews were recorded and transcribed. The interviews lasted from 30 minutes to an hour and 40 minutes and 592 pages of transcript.

The profile of the fifty-one interviewees was segmented by seven directors, twelve top-level managers of organizational units, eleven technical specialists and twenty-one professors responsible for the academic implementation of the project. The profile of this sample is qualified in Table 1, considering those responsible for the implementation of the project and the results of the academic innovation. The number of interviews is justified because it covers the main actors responsible for the strategy under analysis. Data saturation was reached at the 48th interview, significantly reducing new experiences.

[Insert Table 1 about here]

In parallel to the interviews, active participant observation of the researcher took place for three years, from October 2016 to October 2019. The author participated in weekly organizational units meetings, periodic meetings of technical teams, and semiannual academic seminars. More specifically, the researcher had effective participation in 57 project committee meetings, fourteen seminars of academic formation in active methodologies, monthly infrastructure committee, two international events for all university professors focusing on project engagement. The observations were compiled in a field protocol, in which the notes were recorded. Document analysis also constitutes the data set, along with the researcher's field diary, notes, personal feelings, ideas, impressions, or insights from organizational life highlighted. The methodological orientation of this study was detailed in Table 2.

[Insert Table 2 about here]

Analytical Procedure

The data were analysed using narrative analysis (Eriksson and Kovalainen, 2016) and document analysis techniques (Creswell and Poth, 2017). Inductive analysis was conducted and embedded in the data. This study considered the categories emerged from the data, and faithful to it in the terms people in the field themselves used (Brewer, 2005). It was captured the people's voices accurately. Data analysis went through the spiral process (Creswell and Poth, 2017), represented in Figure 2.

[Insert Figure 2 about here]

Twenty classified codes and 180 quotations were established in the content analysis, which emerged from data extracted from transcribed interviews, field diary and documentation. As Brewer (2005, p. 134) says, “quotations are the stuff of ethnography”. These codes were relevant to better specify the literature on strategic improvisation, respecting the manifestations of elements that influence the SI as a dynamic capability. The coding process followed the parameters presented in Figure 3. From the refinement of the data, seventeen codes were compiled for this study, such as '*Adaptation in Practice*', '*New Developed Competence*', '*Spontaneity*', '*Experimentation*', '*Autonomy*', '*Creativity*', '*Crisis*',

'Conflict', 'Multidisciplinary Management', 'Improvisation Practices', 'Individual Learning', 'Collective Learning', 'Organizational Learning', 'Capillarization of Change', 'Informal and Effective Communication', 'Anticipation Strategy', and 'Factors that triggered adaptations'. These 17 codes were structured from 94 quotations, representing an index of 5.53 quotations per code, and grouped into twelve themes. These themes were interpreted to build the findings and were organized into four main aggregate dimensions, presented in the findings.

[Insert Figure 3 about here]

The classification of quotations related to the phenomenon of strategic improvisation as a dynamic capability were segmented by related themes: (i) Improvisation as a means of finding solutions with 21.27% (n=20) of which are 'Improvisation as the ability to promote experimentation' (n=12), 'Improvisation as an ability to generate strategic memory' (n=04), and 'Ability to create solutions from organizational structure' (n=04); (ii) Improvisation as dynamic process optimization with 24.46% (n=23) distributed in 'Ability to promote "new ways" for dynamic contexts' (n=08), 'Ability to rearrange current processes for new demands' (n=07), 'Ability to streamline and accelerate processes' (n=08); (iii) Improvisation as a capacity for political alignment with 25.53% (n=24) segmented into 'Ability to align divergences and ambiguities' (n=07), 'Ability to negotiate institutional processes' (n=06), 'Mediation in pressure and conflict situations' (n=11); (iv) Improvisation as an experience building process with 28.72% (n=27) demonstrated in 'Ability to think strategically for immediate responses' (n=07), 'Adapt processes in dynamic and changing context'; and 'Absorb new skills from improvisation experience' (n=13).

This explicit detailing of the methodological steps was fundamental to create conditions for researchers to follow the same methodological steps to "rebuild" or "replicate" what has been done in different research scenarios, although generalization is not possible. The transferability concept refers to the possibility that the results obtained in a given context in qualitative research can be applied in another context (Merriam, 2009).

Findings

Higher education institutions are social entities whose mission, "raison d'être", is education. These organizations are continuously seeking innovations to meet the constant internal pressures for efficiency and effectiveness, and from outside the dynamic, uncertain, and ever-changing forces of a contemporary world. The complex nature of these organizations are

characterized by ambiguity of goals and organized anarchy (Cohen and March, 1974), unclear technology and political arena (Baldrige, 1971), loosely coupled system (Weick, 1976), diversified interest groups and high professionalism in the academic task (Baldrige, 1983). All of them represent significant challenges to be managed.

In this complex context Strategic Improvisation (SI) played a key role as a dynamic capability in implementing the academic innovation initiatives. The concept of SI as a dynamic capability emerged from this empirical analysis and revealed to be multipurpose in its manifestation. SI was seen as a dynamic capability based on: (1) a means of finding solutions; (2) as dynamic process optimization; (3) as a capacity for political alignment; and, (4) as an experience building process, as presented in Figure 4.

[Insert Figure 4 about here]

The analysis revealed that throughout the implementation of the academic innovation project, strategic improvisation practices were taken as distinct dynamic capabilities by promoting adaptation, articulation, innovation and experience building. In the following items, each type of interaction pattern is discussed at a time, and then, in the discussion section, a model from these discussed dimensions is proposed.

(i) *Strategic improvisation as a means of finding solutions*

This dimension was based on the ability to promote experimentation, especially on recognizing failures as learning, dealing with unpredictability, and performing autonomously for trial and error. The available resources are not just material but above all, human resources as labor-intensive service providers. Disqualified practitioners acting in an unexpected context, such as nonlinearity, plurality of agents, and self-organization, such as the academic environment, must be open to experimentation and recognize possible failures as a learning process. During ethnographic research and observations, it was noted that in many situations, these professionals lack experience, competence, flexibility and autonomy.

This dynamic capability promoted adaptation to the student context and the mindset of the knowledge area. Improvisation practices were conducted by faculty members when applying the content in class with the new paradigm of academic innovation. Improvisations became strategic through the focus on the macro objective to be achieved and student performance. This requires improvement and constant learning and unlearning by the professor. In this sense, faculty's ability to manage multidisciplinary was developed not only

in project implementation but also in the relationship of various areas of knowledge in the application of active methodologies in the classes. These faculty skills reinforce the fact that strategic improvisation is multipurpose. Managers dealt with multidisciplinary as micro engagement actions to ensure project implementation as the micro intentions of the university. This reinforces the concept of macro intentions and micro actions proposed by Meyer et al. (2018). However, faculty members also dealt with multidisciplinary of students to ensure the achievement of the methodological academic innovation. HEI's strategy was the same, but with different approaches in the same context.

Not that we were sure that all this was going to be working, we were never sure that the whole system would be 100% working. Because we never had know-how like that. So we would change the wheel with the moving car.

Creativity is an essential element to the experimentation process and to find solutions. Through creativity, an ability to look for opportunities to improve processes has been developed. Experimentation decisions were made, especially at the beginning of the project, as a means of promoting new solutions as the project unfolds. This allowed for a deeper understanding of institutional processes and the identification of barriers to be overcome and deconstructed. Creating solutions from the existing organizational structure requires creativity, autonomy and new skills developed in this experimentation process. This was the case with the creation of flexible furniture unique to this project for academic activities, practical tasks decided at class time and changing active learning methods as the practice unfolded. These examples demanded creative actions and autonomy to promote the learning process.

Strategic memory was an aspect unintentionally promoted, but with significant results to ensure innovation. A chemistry engineer professor stated, "*When you are planning for an activity that is similar to another discipline, you are already thinking about those possibilities of mistakes and successes you have experienced*". This strategic memory may be limited when barriers to spontaneity, flexibility and creativity are imposed by the project manager. "*So not everyone knows how to improvise, and not everyone knows how to turn improvisation into innovation and that innovation into a culture,*" said the director of technology.

(ii) Strategic improvisation as a dynamic process optimization

The dynamic process optimization was observed in the fluid communication capability and the empowerment of the involved areas to optimize and accelerate the processes. Decisions made based on informal communication were inevitable for the progress of the

project, especially in more bureaucratic processes, as evidenced by participant observation. This ability to communicate effectively, identified in this ethnographic study as informal, is confirmed in the planning specialist's statement:

So sometimes it was not approved by the committee but had approval from the project head. Some informal conversations, not recorded in the minutes, it is not registered anywhere, any kind of registration, were decisions that happened.

However, limited time and financial accountability were elements of process optimization through internal pressure factors. For the project coordination, *"we just have become more agile processes due to time pressure and commitment to financial resources to account. That's what basically made people work"*. In order to make this process optimization possible, the researcher experienced an effort from the project manager and planning coordination through project awareness. Raising awareness of the importance of the project for academic innovation was through strategic improvisation practices, focusing on the outcome. The infrastructure director highlighted:

The lack of contact with reality and awareness does not happen in some moments, for some very rational and bureaucratic areas. I think there is a gap and improvisation comes up because of that.

Improvisation practices to promote "new ways of doing" were applied to confront the efficiency and resolution of the processes. Reorganizing current processes to new demands was critical, especially when there is a large institutional demand with the same team involved. The priority of activities and decision-making autonomy becomes a huge challenge. The technology coordinator stated: *"It needed autonomy because otherwise, it would not work. Because it's so bureaucratic and time-consuming. Innovation projects need autonomy in practice"*. This context reinforces the demand for project awareness and political articulation among project manager and faculty members.

(iii) *Strategic improvisation as a capability for political alignment*

The political alignment is based on the ability to handle or to cope or even to balance divergences and ambiguities, negotiate institutional processes and mediate in situations of pressure and conflict. Bureaucracy as a factor that triggered conflict and the lack of systemic vision of the project as a whole were highlighted as strong demand for articulation and political alignment. On this matter the planning coordinator stated, *"Each area took care of its specific part, without regard to the possible impacts on other areas. It had no involvement in the process as a whole"*. This scenario of individualism of organizational units provided more

space to develop a dynamic capability for articulation and convincing to ensure the involvement of teams in the project.

Conflict of interest was permeated by various institutional demands, in addition to the project analyzed in this study, which was often seen by organizational units as more work without more headcount. With this, awareness of this reality, negotiating power and capability of articulation were pivotal to make this project achieve its result of academic innovation. This context was stated by the project architect, *"So, that's it, conflicts of interest, although in general everyone wanted to see the project happen. The problem is that often this creates new jobs, new demands, not everyone is willing to leave their comfort zone"*.

The lack of the project systematic view as a whole was also a source of political articulation. Lack of technical data, the ambiguity of interest and pressure for an immediate decision was a source of conflict. The technical basis for decision making, especially in view of the unexpected and surprises, was highlighted by the project manager as a critical aspect for alignment. The project committee was seen as a scenario of alignment, discussion and analysis of alternatives proposed by the organizational units. This is a strategic improvisation, spontaneously constituted after the start of the project, to ensure political articulation. The project manager pointed out:

In the project committee, I had the same kind of problem. I had one person defending one thing and another person defending another when I asked for the data neither had. And I make the decision based on what? These infrastructure decisions I was sold on many things. I had to make a decision, but I had no basis.

In this sense, the orchestration of resources and process adjustments was a dynamic capability developed as articulation using strategic improvisation, pointed out by the technology specialist:

A new competency developed by the project manager was to know the elements available. So based on this knowledge, the manager was able to put and remove each little piece in the necessary place. That comes the part of orchestrating! This manager is the typical case of the person who deals with improvisation all the time.

(iv) Strategic improvisation as an experience building process

The SI capability of experience building is based on strategic thinking through reflection of new practices to achieve relevant outcomes. Think about the goal and uses spontaneity and novelty ways to achieve it can promote new skills and significant experience, focusing on performance. The clarity of the macro strategy and the necessary tools, in this study the available active methodologies, were key elements to provide academic innovation.

Learning is the fundamental aspect of the SI perspective as building experience. “*So I learned how to learn in any situation*”, said a professor of health area. This appointment highlights the role of learning in developing new skills, including an understanding that learning and unlearning are inherent in the built experience.

The capability to build experience presents the freedom of strategic improvisation initiatives to respond to immediate situations while maintaining a focus on macro strategy and high performance. This was evidenced in the project analyzed, “*So we had total creative freedom within the process, both in management and execution,*” stated by architecture coordinator, in the context of seeking alternative solutions with the main focus on the strategy of academic innovation. This ethnographic study allowed the researcher to see that improvisation practices were strategic when the lived experiences (adaptations, immediate responses, unexpected decisions, significant creativity, process flexibility and the collaboration between organization units) promoted significant differential for project performance ensuring academic innovation. One engineering professor pointed out:

The professor is one who acts in uncertainty and decides in urgency. Because we open the classroom and you do not know what will come up, what doubts you will have! So you have to act in uncertainty and decide in urgency. The students put you on the wall and they want that answer. So, you have to be very careful not to slip.

Flexibility of the operational process is essential to provide adaptation to a dynamic and changing context of an innovation project. It requires operational alignments, multidisciplinary management and engagement in improvisation experience. This flexibility in a new experience was highlighted by a humanities professor and responsible for the development of workshops, “*previous experiences would not guarantee all the innovation that was made*”. In addition, statements of new capabilities developed in the practice of strategic improvisation are highlighted in Table 3.

[Insert Table 3 about here]

These statements indicated that SI brought along new dynamic capabilities which were critical in the management and development of an academic innovation project. Mediation in the academic formation, ability to create new solutions and thinking strategically of improvisation practices were ways that demonstrated the manifestations of SI. Dynamic and flexible practices have been adopted as a way to make things happen in the context of HEI. Adaptation was seen as a crucial need for academic professionals and new managerial

competency was the "orchestrating" resources as a strategic role of the university managers. Strategic improvisation was highlighted as maximization of the resources available to achieve relevant performance in the academic innovation.

SI as dynamic capability is a critical tool for materializing innovation projects in a loosely coupled system, such as academic organizations. The only way to make the innovative project at the micro level viable is to promote strategic priority at the macro level of the university (Meyer, Pascuci and Meyer, 2018). However, dynamic capabilities were strategic tools in the specific context of the innovative academic project. Thus, the approach of this study does not consider these tools for the management of all academic units and areas of the university. These capabilities were evidenced in the project that constituted the beginning of academic innovation with a particular group of faculty member that was the target of the project. It was a pilot project as an experience of methodological innovation in higher education.

Discussion

Higher education institutions, in order to survive in a dynamic and competitive context, demand strategies to innovate, reinvent and evolve, fulfilling their mission. For this, academic managers adopt emerging management actions, such as strategic improvisation. SI is adopted as an important dynamic capability for adaptation, articulation, innovation and experience building. This study seeks to provide more specific insights into strategic improvisation and dynamic capability within the complex content of an academic organization. Five main points identified in the SI as dynamic capability were highlighted, essential to a complex organization, with significant results.

First, *the interrelationship between groups and organizational units, through the common objective established, developed an innovation and articulation capability*. Although the mindset and technical distinct configurations of institutional areas enhanced the development of adaptive capability as it required greater interdependence, especially in relation of the expertise of another area, it promoted "new ways of alignment" to guarantee the execution of a particular task by another area. In this regard, SI is seen as a capacity for political alignment. Anticipation strategy is used as a means of politically aligning the project and avoiding miscommunication and schedule delays due to lack of team engagement. During ethnographic participation, it was realized that engaging stakeholders was a way to humanizing the project. This anticipation and prior alignment have the power to alter the

responsiveness of project demand, increasing awareness of the strategic importance of the project to the organization.

Organizational routines provided room to make connections between people as they engage in the innovation initiatives. Thus, serve as configurations for developing understandings about “both what needs to be done in a specific instance of performing a routine and about the goals of the organization” (Feldman and Rafaeli, 2002, p. 309). Some routines may flow from institutional pressures or even from the project boundaries, such as time, financial and scope limits. These routines include the creation of the project committee to deal with internal pressures. However, other routines often reflect formalized decision-making procedures. At this point, it is possible to mention the routines of organizational units that are much higher than the project expectation that requires a dynamic process. Thus, these routines are seen as bureaucratic and time-consuming. Since they do not involve deliberate search (Feldman and Pentland, 2003), they are settings in which prevailing strategy frames dominate cognitive processes. Projects are subjected to numerous constraints and project managers are expected to deliver results in increasingly ambiguous and politically influenced environments.

Articulation as a capacity for political alignment views an organization as an arena of lasting differences, scarce resources, and the inevitability of power and conflict (Pfeffer, 1994). The diversity of values, beliefs, interests, preferences, behaviors, skills and worldviews is a lasting organizational reality. And this is particularly true in academic organizations (Keller, 2008; Marginson, 2010). This diversity is often toxic, but it can also be a source of creativity (Stacey, 1996) and innovation when effectively recognized and managed (Larsen and Bogers, 2014). Negotiation and renegotiation processes are guided by discussions, alignments and political disagreements. Stakeholders are often more interested in leveraging their political behaviors to maintain the status quo rather than challenging process change in a more dynamic and productive context. This is consistent with the work of Andersen, Dysvik, and Vaagaasar (2009), highlighting how an organization's culture influences the way projects are implemented. Therefore, the capability to articulate is fundamental to promote dynamism and alignment, despite divergent and conflicting behaviors. The project coordination pointed out:

There was a lot of improvisation, because the institutional processes were very slow. These processes did not have a quick response to the kind of project we were dealing with. So, we had to make a project committee with the participation of the organizational units involved. If that hadn't happened, I think we would have had more delivery delays and a lot more conflicts.

Secondly, *collective learning took place through the development of strategic improvisation as an experience building capability*. In many circumstances, the process of implementation of an innovation project is based on trial and error (Davies, 2014). *"Hits and errors have made improving"*, stated an engineering professor. It has been *"New to working with error"*, he adds. *"Stumbles happen and how dealing with these stumbles can determine the results"*, says the project coordinator. A professor at the health area says *"try and evaluate what you need to adapt"* as inherent in the change process (Stacey, 1995). The capability to build experience has to do with the ability to think strategically for immediate responses, especially on how to promote competitive advantage and better performance. Absorb new skills from this improvisation experience is critical in this dynamic capability. In this sense, adapt processes in a dynamic and changing context is inherent in the action of strategic improvisation.

The change in academic methodology as an innovative project permeates a plurality of agents and bureaucratic processes, the ability to build experience promotes the identification of possible adjustments processes through the strategic improvisation experience. The developed experience was underlined by the paradox of "preparing for the unexpected". The practices of strategic improvisation provided academic managers with the knowledge and confidence to deal with the unexpected and achieve the expected plan. Collective learning was evidenced in the group interaction as a way to generate engagement and productivity in academic practices. Change and adaptability are caused by project demands during implementation. In this regards, strategic improvisation provides immediate response in this dynamic environment, focusing on performance.

Thirdly, *the SI adaptive capability was promoted through the dynamic optimization process*. Strategic improvisation has developed a dynamic ability in teams to prepare a "toolbox" to adapt to uncertain contexts. The statement of an architect confirmed that *"there was a need for innovation, there was a great need for improvisation to accomplish what was planned. With that need for improvisation, a new competence emerged: we have to have a better toolbox"*. In this sense, it has developed an ability to look for the best tool as an immediate response to the unexpected to achieve better results. Improvisation as a learning process has developed the ability to know how to improvise, as reported by the infrastructure director, *"improvisation always happens, but they [the team] have more capacity, more tools, than the toolbox increases. Because when you have an improvisation, also knows how to do it"*.

Strategic improvisation is present in the spontaneous decisions of the project, to make adjustments and changes, mainly to optimize processes. Strategy recognized the need for "deliberately emerging" approaches that adapt to turbulent contexts through the adoption of cycles of change (Mintzberg, 1985). By adapting, organizations are open to surprises, intending to achieve goals. The SI approach does not refer to a rejection of planning, but a recognition that the environment is often changing faster and with less visibility of information than can be accommodated by traditional analytic regimes. Plans and priorities are re-organized and sometimes discarded due to new contexts that have emerged, requiring dynamism, improvisation, creativity and innovation by managers.

Fourthly, *innovation capability was developed as a means of finding solutions*. Innovation is needed to ensure that progress continues to be made to achieve more context-adaptable results (Schwab, 2016). Organizations are under extreme pressure of innovations and the development of disruptive thoughts. This is the result of today's multifaceted and deeply interconnected world. In addition, new technologies generate newer and increasingly qualified technologies (Schwab, 2016). Managing organizations in an increasingly complex and disruptive environment require managers to be flexible, adaptable and dynamic.

Innovation capability emerged from agents' spontaneity, creativity and engagement to promote process flexibility (Thomke, 1997) by seeking new ways to find solutions. By improvising, individuals respond flexibly to new circumstances, making exceptions to the rules and subconsciously using their intuition to generate quick solutions (Crossan and Sorrenti, 1997). Creativity is a key element in the complex process (Stacey, 1996) to rethink the differentiation of an academic innovation project. A spontaneous process of self-organization (Stacey, 2010) was operationalized through the constant interactions of managers and experts involved in the project. The professionals' effort to promote project improvements aimed to establish meaningful relationships in the search for better alignment, engagement with project goals and less bureaucracy.

There is a long way to go to achieve effective project management practices in innovation due to organizational complexity. Strategic improvisation plays an important role in this context dealing with the unexpected focus on project performance. In this sense, the focus of managers is to develop new ideas, restructure processes and promote initiatives with strategic results for the organization. Resistance to change, accommodation, and insecurity in the future are some challenges for academic managers to overcome. In the case of academic organizations, they are structured to reject change, especially rapid change. A period of trust

among academic managers and faculty members was developed throughout the project that contributed to the achievement of collaboration and engagement of academic innovation.

Fifth, *autonomy, collaboration, and trust were essential elements as a "roadmap" for establishing a fertile path for strategic improvisation*. Managing projects in a complex environment such as an HEI is often based on the assumption that results can be determined early enough in the project and delivered as planned may be wrong. Weick (1987) understands that action during project implementation is responsible for the results obtained. When a project reaches the diversity of areas and the plurality of agents, such as the level of ambiguity and high level of interconnectivity between stakeholders, control-based approaches things simply do not work. New management approaches with changes in the typical managerial procedures like rigid, detailed and static project plan are required to cope with such complexity. Elements such as autonomy, collaboration and trust are crucial aspects to pave the road for SI manifestation in the search for new ways to deal with the complex environment.

The high number of project management failures suggests that the method employed, supported only by control systems, is not appropriate for all project types and all organizations (Williams, 1999). Thus, to achieve satisfactory results, project managers need to adopt both a systemic approach and a pluralistic approach to practice, with flexibility (Thomke, 1997) for strategic improvisation. Managing complex projects requires attention to other elements, such as learning (McDaniel, 2007), interactions (Ritter, Wilkinson and Johnston, 2004) and cooperation between agents (Stacey, Griffin and Shawn, 2000). These elements may compromise the effectiveness of methods that require rules, control and restrictions on the autonomy of specialists.

The dynamic capabilities of strategic improvisation are compiled in four categories as demonstrated in the model composed by: (i) adaptive capability; (ii) articulation capability; (iii) innovation capability; and (iv) building experience capability, detailed in Figure 5.

[Insert Figure 5 about here]

The model represents the internal and external dynamic interactions of a complex organization. External pressure requires innovation and the development of disruptive thinking to deliver a high level of services. Internal pressure seeks higher performance, competitive advantage and legitimacy. The complex nature of organizations is a source of constant surprises, such as the speed of interruptions and the acceleration of innovations. In

this context, a manager's ability to continually learn, adapt and challenge their own conceptual and operational models is critical to the proper management of dynamic organizations. Ambiguities, divergences and plurality of interests can be tension on the adaptive forces of a complex system.

Managerial practices in the academic context of the project were based on strategic improvisation as a means to adapt bureaucratic processes that did not meet the need for the innovation project. High levels of adaptation are adopted as a means of process optimization to suit project needs and team engagement through project awareness. Articulation as a capability for political alignment sees an organization with the inevitability of power and conflict (Pfeffer, 1994). Thus, it demands, in an efficient and productive way, the constant alignment between actors involved in divergences and ambiguities. The plurality of agents, diverse behaviors and divergent interests is an organizational reality. Negotiation processes are required continuously at all levels of the organization.

The process of searching for “new ways of doing” to achieve better performance and competitive advantage is the focus of SI as an innovation capability in finding new ways of doing things more effectively. Innovation is needed to ensure more context-adaptable results. Autonomy, creativity and collaboration are key elements to highlight the capacity for innovation. The SI building experience capability is based on a spontaneous process of immediate response to an unexpected promoting learning. Individual, collective and organizational learning is produced through this capability, as the lived experience can be absorbed and replicated in other projects, institutional areas or individually as a professional.

Thus, although quite a challenge for academic managers the experience of the innovative project revealed that an integrative managerial framework based on strategic improvisation and dynamic capability tools contributed significantly to the achievement of the main goals of the academic project.

Conclusions

This paper presented the strategic improvisation as a dynamic capability in an innovation project in the academic environment. More specifically, it sought to explore the dynamic capability of SI in an academic innovation project, considered strategic for the organization analysed. It is the first study to examine SI under a dynamic capability framework. Consistent with other research (Teece, 2012), it was argued that dynamic capabilities apply to dynamic organizations in changing contexts. Higher education institutions are continuously challenged by environmental forces and need new management approaches to effectively respond to

growing demands. Strategic improvisation is valuable as a dynamic capability to manage innovation projects in dynamic and complex organizations such as higher education institutions.

This study demonstrated that the interrelationship between groups and organizational units, through the common objective established, developed an innovation and articulation capability; collective learning took place through the development of strategic improvisation as an experience building capability; the SI adaptive capability was promoted through the dynamic optimization process; innovation capability was developed as a means of finding solutions; and, autonomy, collaboration, and trust were essential elements as a roadmap for establishing a fertile path for strategic improvisation.

Four main contributions were highlighted in this study: (i) it presents multiple dimensions of SI as dynamic capability (adaptive, articulation, innovation and experience building capabilities); (ii) a conceptual model is proposed and integrates SI and dynamic capability into its different aspects; (iii) the existence of an important capability as SI to manage innovation projects in the academic environment; (iv) managerial implications of dynamic SI capability in the context of dynamic organizations.

The SI approach as a dynamic capability is important to the field of improvisation once it highlights a new perspective to strategic management. For the study of organizational complexity highlights an element of SI and its ability to act in management practices most appropriate to complex organizations in search of better performance. For the theory of dynamic capabilities, it offers a new concept of strategic improvisation to be deepened in different contexts.

Practical Implications

As practical implications for managing complex organizations, the dynamic capabilities of SI provide some important insights. Given the growing dynamics of organizations, change processes will require and emphasize the ability of managers to continually adapt and learn new skills and approaches within a variety of contexts. In a dynamic and changing context, the ability to anticipate future trends and adaptability becomes even more critical for all stakeholders. The challenge of managing complex projects lies in knowing how to deal with technical competence, human relations, and political articulation in unexpected and unpredictable situations. Elements such as flexibility, adaptability and learning are essential to achieve effectiveness and better performance in complex systems, overcoming obstacles by managers.

In this sense, managers demand greater dynamic capability based on complex problem-solving skills, social and system skills and less on specific technical skills. Organizations demand a new perspective on their ability to operationalize their processes quickly and agile to promote better results. The human factor in this process assumes the role of a creative, dynamic and autonomous being who acts strategically to achieve results. Giving strategic improvisation practices the maximum space to emerge can make all the difference in managing dynamic contexts. As organizations become more flexible and dynamic, they become places of experimentation and powerful hubs for turning new ideas into performance.

Suggestions for future research

This research highlights the fundamental aspects to be considered for future research. These include expanding the dynamic capability approach into strategic improvisation research. Specifically, research may explore the use of dynamic resources not only in HEI but also in another context of globalized, complex and dynamic organizations. Research questions that can be explored in future studies include: What is the relationship between dynamic SI capability and high performance? Is there any level or degree differentiation that the dynamic capability of SI manifests itself? To what extent can dynamic SI capability be considered a competitive advantage? What is the implication of multidisciplinary management in the development of dynamic SI capabilities?

References

- Andersen, E.S., Dysvik, A. and Vaagaasar, A.L. (2009). Organizational rationality and project management. *International Journal of Managing Projects in Business*, 2(4), 479-498.
- Barreto, I. (2010). Dynamic capabilities: a review of past research and an agenda for the future. *Journal of Management*, 36(1), 256-280.
- Bechky, B.A. and Okhuysen, G.A. (2011). Expecting the unexpected? How SWAT officers and film crews handle surprises. *Academy of Management Journal*, 54(2), 239-261.
- Bergh, D.D. and Lim, E.N.-K. (2008). Learning how to restructure: absorptive capacity and improvisational views of restructuring actions and performance. *Strategic Management Journal*, 29(6), 593-616.
- Brewer, J.D. (2005). *Ethnography*. London: Open University Press.
- Chen, Y.-S., Lin, M.-J. J. and Chang, C.-H. (2009). The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial markets. *Industrial Marketing Management*, 38(2), 152-158.
- Creswell, J.W. and Poth, C.N. (2017). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. 4th Edition, SAGE Publications, Inc., Thousand Oaks.
- Crossan, M. and Hurst, D. (2003). *Strategic renewal as improvisation: Reconciling the tension between exploration and exploitation*. Working paper. University of Western Ontario, Richard Ivey Business School.
- Crossan, M. and Sorrenti, M. (1997). Making sense of improvisation. In: Walsh, J. P.; Huff, A. S. *Advances in Strategic Management*, 14(1), 155-180.
- Cunha, M.P. (2005). Adopting or adapting? The tension between local and international mindsets in Portuguese management. *Journal of World Business*, 40(2), 188-202.
- Davies, A. (2014). *Innovation and Project Management*, in: M. Dodgson, D. M. Gann and N. Phillips (eds.): *The Oxford Handbook of Innovation Management*. Oxford: Oxford University Press.
- Davis, J.P., Eisenhardt, K.M. and Bingham, C.B. (2009). Optimal structure, Market dynamism, and the strategy of simple rules. *Administrative Science Quarterly*, 54(3), 413-452.
- Dixon, S.E.A., Meyer, K.E. and Day, M. (2010). Stages of organizational transformation in transition economies: A dynamic capabilities approach. *Journal of Management Studies*, 47(3), 416-436.
- Eisenhardt, K.M. and Martin, J.A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10-11), 1105-1121.

- Eriksson, P. and Kovalainen, A. (2016). *Qualitative Methods in Business Research*. 2nd ed. London, Thousand Oaks, New Delhi and Singapore: Sage.
- Feldman, M.S. and Pentland, B.T. (2003). Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Administrative Science Quarterly*, 48(1), 94-118.
- Feldman, M.S. and Rafaeli, A. (2002). Organizational Routines as Sources of Connections and Understandings. *Journal of Management Studies*, 39(3), 309-331.
- Helfat, C. and S. Winter (2011). Untangling dynamic and operational capabilities: Strategy for the (N)ever-changing world. *Strategic Management Journal*, 32(11), 1243–1250.
- Helfat, C.E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D. and Winter, S.G. (2007). *Dynamic Capabilities: Understanding Strategic Changes in Organizations*, Blackwell Publishing, Malden, MA.
- Hmieleski, K.M., Corbett, A.C. and Baron, R.A. (2013). Entrepreneurs' improvisational behavior and firm performance: A study of dispositional and environmental moderators. *Strategic Entrepreneurship Journal*, 7(2), 138–150.
- Jansen, J.J., Van Den Bosch, F.A. and Volberda, H.W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management science*, 52(11), 1661-1674.
- Jiang, W., Mavondo, F.T. and Matanda, M.J. (2015). Integrative capability for successful partnering: a critical dynamic capability. *Management Decision*, 53(6), 1184-1202.
- Keller, G. (2008). *Higher Education and the New Society*. Baltimore, Maryland: John Hopkins University Press.
- Larsen, H., and Bogers, M. (2014). *Innovation as Improvisation 'In The Shadow'*, Creativity and Innovation Management, 23(4), 386-399.
- Lee, P.Y., Chen, H.H. and Shyr, Y.H. (2011). Driving dynamic knowledge articulation and dynamic capabilities development of service alliance firms. *The Service Industries Journal*, 31(13), 2223-2242.
- Malik, O.R. (2008). Adapting to market liberalization: the role of dynamic capabilities, initial resource conditions, and strategic path choices in determining evolutionary fitness of Less Developed Country (LDC) firms. *Journal of International Management*, 14(3), 217-231.
- Mamédio, D., Rocha, C., Szczepanik, D. and Kato, H. (2019). Strategic alliances and dynamic capabilities: a systematic review. *Journal of Strategy and Management*, 12(1), 83-102.
- Marginson, S. (2010). Higher Education in the Global Knowledge Economy. *Procedia Social and Behavioral Sciences*, 2(5), 6962–6980.
- McDaniel, R.R. (2007). Management strategies for complex adaptive systems: sensemaking, learning, and improvisation. *Performance Improvement Quarterly*, 20(2), 21-41.

- McGrath, R.G. (2010). Business models: A discovery driven approach. *Long Range Planning* 43(2), 247–261.
- Merriam, S. B. (2009). *Qualitative Research*. A Guide to Design and Implementation. San Francisco, CA: Jossey-Bass.
- Meyer, V.Jr., Pascucci, L. and Meyer, B. (2018). Strategies in Universities: Tensions between macro intentions and micro actions. *RAC*, 22(2), 163-177.
- Mintzberg, H. (1985). The Organization as a Political Arena. *Journal of Management Studies*, 22(2), 134-154.
- Nisula, A.-M. and Kianto, A. (2015). The role of knowledge management practices in supporting employee capacity for improvisation. *The International Journal of Human Resource Management*, 27(17), 1920–1937.
- Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science*, 11(4), 404-428.
- Pavlou, P.A. and El Sawy, O.A. (2010). The ‘third hand’: IT-enabled competitive advantage in turbulence through improvisational capabilities. *Information Systems Research*, 21(3), 443–471.
- Peteraf, M., Di Stefano, G. and Verona, G. (2013). The elephant in the room of dynamic capabilities: Bringing two diverging conversations together. *Strategic Management Journal*, 34(12), 1389–1410.
- Pfeffer, J. (1994). *Managing with power: politics and influence in organizations*, Boston: Harvard Business School Press.
- Ritter, T., Wilkinson, I. F. and Johnston, W. J. (2004). Managing in Complex Business Networks. *Industrial Marketing Management*, 33(3), 175-183.
- Schilke, O. (2014). Second-order dynamic capabilities: how do they matter?”. *Academy of Management Perspectives*, 28(4), 368-380.
- Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum, Geneva, Switzerland.
- Spradley, J.P. (2016). *The Ethnographic Interview*. Waveland Press, Inc.; Reissue edition.
- Stacey, R.D. (1995). The science of complexity: an alternative perspective for strategic change processes. *Strategic Management Journal*, 16(6), 477-495.
- Stacey, R.D. (1996). *Complexity and creativity in organizations*. San Francisco: Berrett-Koehler.
- Stacey, R.D. (2010). *Complexity and Organizational Reality*. London: Routledge.

- Stacey, R.D., Griffin, D. and Shaw, P. (2000). *Complexity and Management: Fad or Radical Challenge to Systems Thinking?* Abingdon: Routledge.
- Teece, D.J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Teece, D.J. (2012). Dynamic capabilities: routines versus entrepreneurial action. *Journal of Management Studies*, 49(8), 1395–1401.
- Van Maanen, J. (2011). *Tales of the Field: On Writing Ethnography*. Second Edition. University of Chicago Press.
- Thomke, S. (1997). *The role of flexibility in the development of new products: an empirical study*. *Research Policy*, 26(1), 105–119.
- Vera, D. and Crossan, M. (2007). *Reconciling learning paradoxes through improvisation*. In: Actes de la conférence Organizational Learning Knowledge and Capabilities Learning Fusion.
- Vera, D., Nemanich, L., Vélez-Castrillón, S. and Werner, S. (2016). Knowledge-Based and Contextual Factors Associated with R&D Teams' Improvisation Capability. *Journal of Management*, 42(7), 1874–1903.
- Wang, C.-H. and Hsu, L.-C. (2014). Building exploration and exploitation in the high-tech industry: The role of relationship learning. *Technological Forecasting and Social Change*, 81(1), 331-340.
- Weick, K.E. (1987). *Substitutes for strategy*, in: TEECE, David J. The competitive challenge: strategies for industrial innovation and renewal. New York: Harper and Row.
- Weick, K.E. (2001). *Making Sense of the Organization*. Oxford, UK: Blackwell.
- Williams, T.M. (1999). The need for new paradigms for complex projects. *International Journal of Project Management*, 17(5), 269-273.
- Winter, S. G. (2003). Mistaken perceptions: Cases and consequences. *British Journal of Management*, 14(1), 39–44.
- Zahra, S. A., H. J. Sapienza and P. Davidsson (2006). Entrepreneurship and dynamic capabilities: A review, model and Research agenda. *Journal of Management Studies*, 43(4), 917–955.
- Zheng, S., Zhang, W. and Du, J. (2011). Knowledge-based dynamic capabilities and innovation in networked environments. *Journal of Knowledge Management*, 15(6), 1035-1051.
- Zollo, M. and Winter, S.G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13(3), 339–351.

TABLES

Table 1 – Profile of the respondents

Gender		Position	
Male	35,48%	Director	12,90%
Female	64,52%	Manager	6,45%
Project involvement time		Coordination	22,58%
Less than 1 year	9,68%	Technical specialist	16,13%
From 1,1 to 2 years	22,58%	Professors	41,94%
From 2,1 to 3 years	67,74%	Level of education	
Work experience in HEI		Bachelor Degree	9,68%
Less than 10 years	54,84%	Post Graduate Degree	29,03%
More than 10,1 years	45,16%	Master and PhD Degree	61,29%

Table 2 – Methodological orientation

<i>Philosophical commitment</i>	Interpretivism, reality as socially constructed
<i>Methodological paradigm</i>	Ethnography
<i>Research strategy</i>	Longitudinal design, qualitative methodologies, triangulation
<i>Methodologies</i>	In-depth interviewing, informal conversations, participant observation, and document analysis

Table 3 – Statements of new capabilities developed in the practice of improvisation

<i>Interviewee Profile</i>	<i>Significant Statement</i>
Doctor and professor of Medicine	"You have to intervene in the middle of the process, you have to mediate. As was happening ... it was structured. It was giving problems, we were making new instructions. With this, we were accelerating the process. Not necessarily that it was previously planned. But this was happening during the project, as these interventions".
Health area Professor	"It's that moment where you have to stop, think, make decisions, create another exercise [...] to operate and ensure the plan. The content was given a dynamic and flexible way."
Project Manager	"We must have an adaptive capacity. What works for one class, does not work for another. So we have to adapt. This adaptability may have to be a characteristic of the professor today. He/She has to be open to this adaptation".
IT Technical Specialist	"I think a new competency developed by the Project Manager was to know the elements she had. So based on this knowledge, it is managing to put on and take each little piece in the necessary place. That comes the part of orchestrating! This is the typical case of the person who deals with improvisation all the time because it is a project with many demands. Then the project manager had to trust people, and it was a fantastic exercise".
Project Management Specialist	"The new competence would be to manage all these changes in a new project, which we didn't quite understand how this project would work. So the new competency, in fact, was learning how to manage the total innovation project. So there was no know-how of how it would work. That's why the feeling of innovation we learned a lot in practice".
Architecture coordinator	"So the creative issues that often border on improvisation are incorporated as technical solutions and a technical answer is given to those ideas. So it's an improvisation, in a way, to maximize the use of elements".
Chemistry professor and Workshop instructor	"Something that I found quite interesting is that I started thinking about the following improvisation strategy activities. So, the first ones I had to think very fast. And the following I already had: oh, I'll do it, but if it doesn't work, I'll go for it, but if it doesn't work, I'll go for it. So I already had these things in my head!"
Supply Manager	"New competence because these cases are unprecedented. This did not happen at the university. It was a period of learning and development for people, how to work together, how to do this business together, let vanity aside".
Communication and Journalism Professor	"The project gave me confidence to change things. It has increased self-criticism. It's okay to imagine something and it doesn't happen. So I felt safer to say, "guys, let's change?". I realized that I wasn't making a joke or running away from the script. I realized that was the attitude I had as a manager. A role of managing the class, managing the content, managing everything. So I felt more comfortable making changes. This is not a failure nor a mistake, however, is a hit and a necessary attitude in many situations".
Pharmaceutical Professor	"The experience was not previous, although we always deal with adaptations. So, like this, we always improvise. But since I was improvising with new methodologies, with new things that were not fully experienced in this, it was an improvisation that I had no experience with. So a new competence developed".
Electrical Engineering Professor	"Of course previous experience helps because you have more security in what you are going to do. Improvising to meet unexpected situations in the student's learning path is to use students' own examples to improve classes".
Humanities Professor	"But I was able to improvise to make it work [the plan] because the class engaged with me, looking for a solution".
Architect	"It's like having a loose gear there. So there the gears were olive so we could rotate everyone together [...] So we would change the wheel with the car moving".

FIGURES

Figure 1 - Research Framework

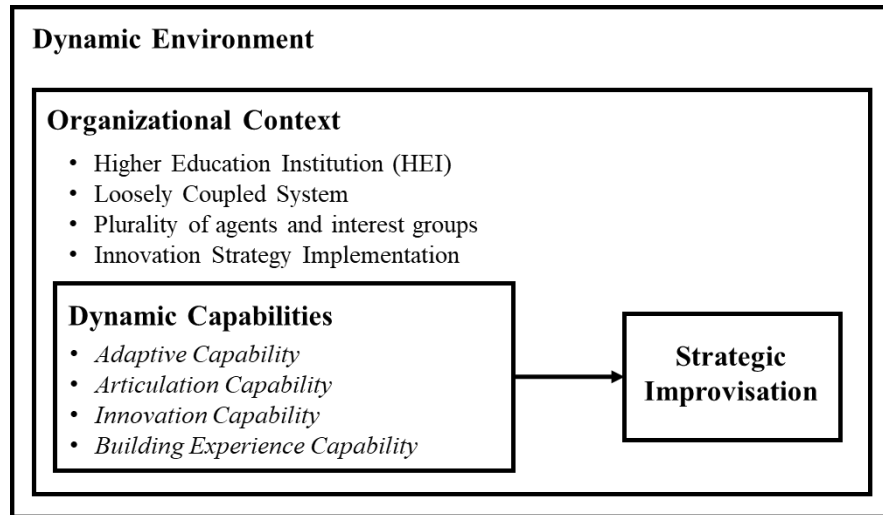
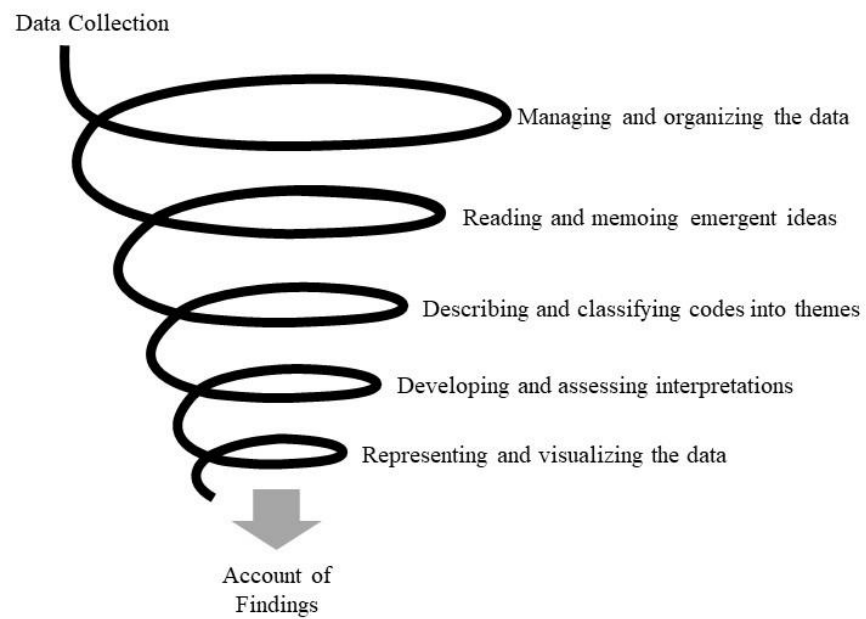
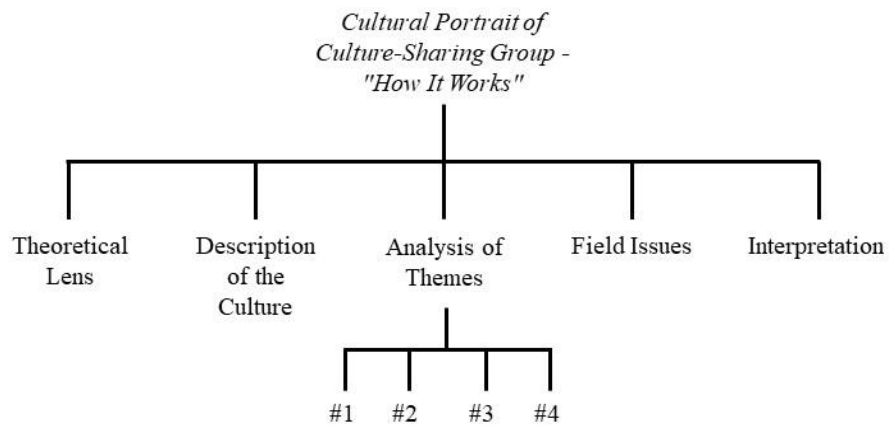


Figure 2 - Data Analysis Spiral



Source: Creswell and Poth (2017).

Figure 3 - Template for Coding an Ethnography



Source: Creswell and Poth (2017).

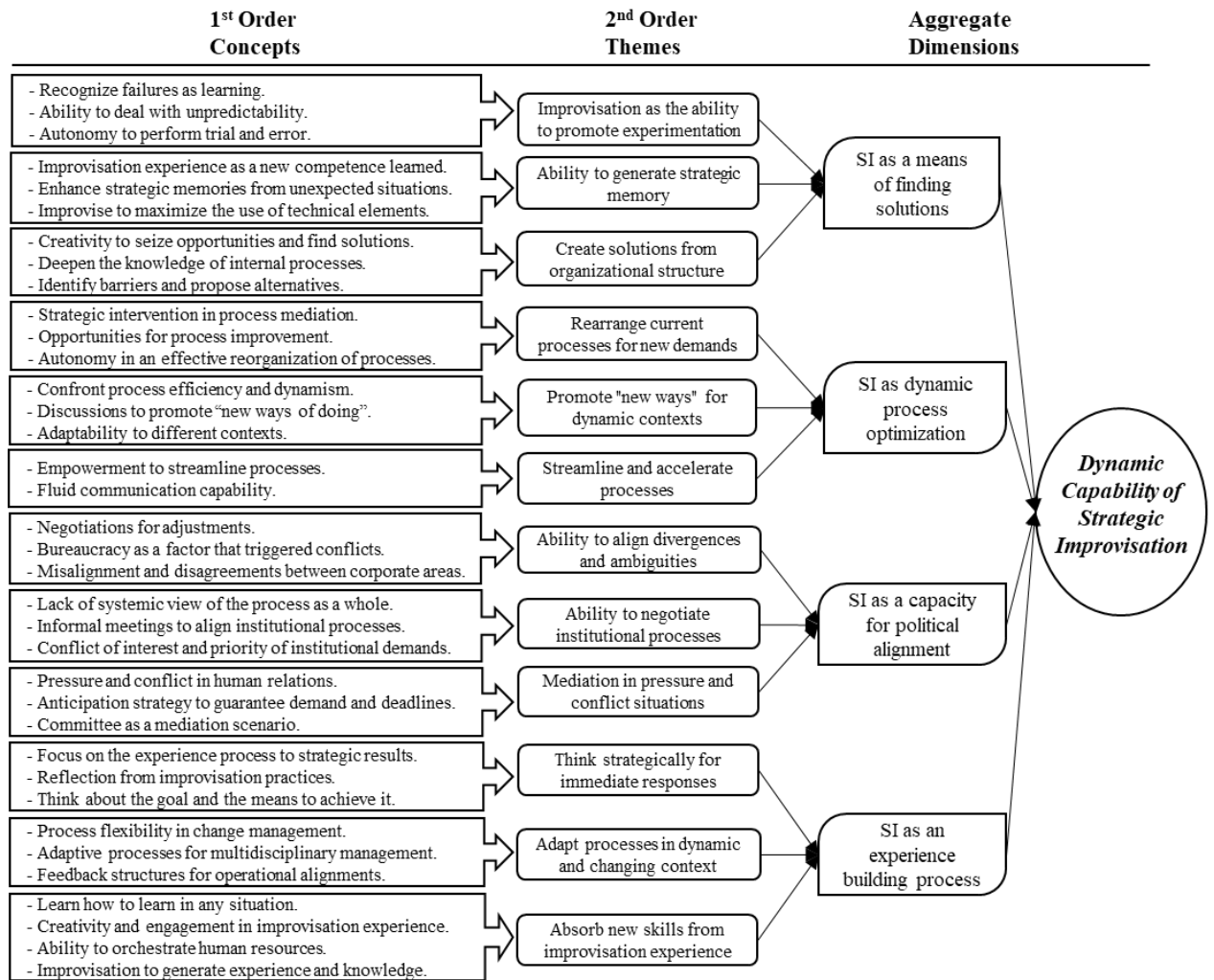
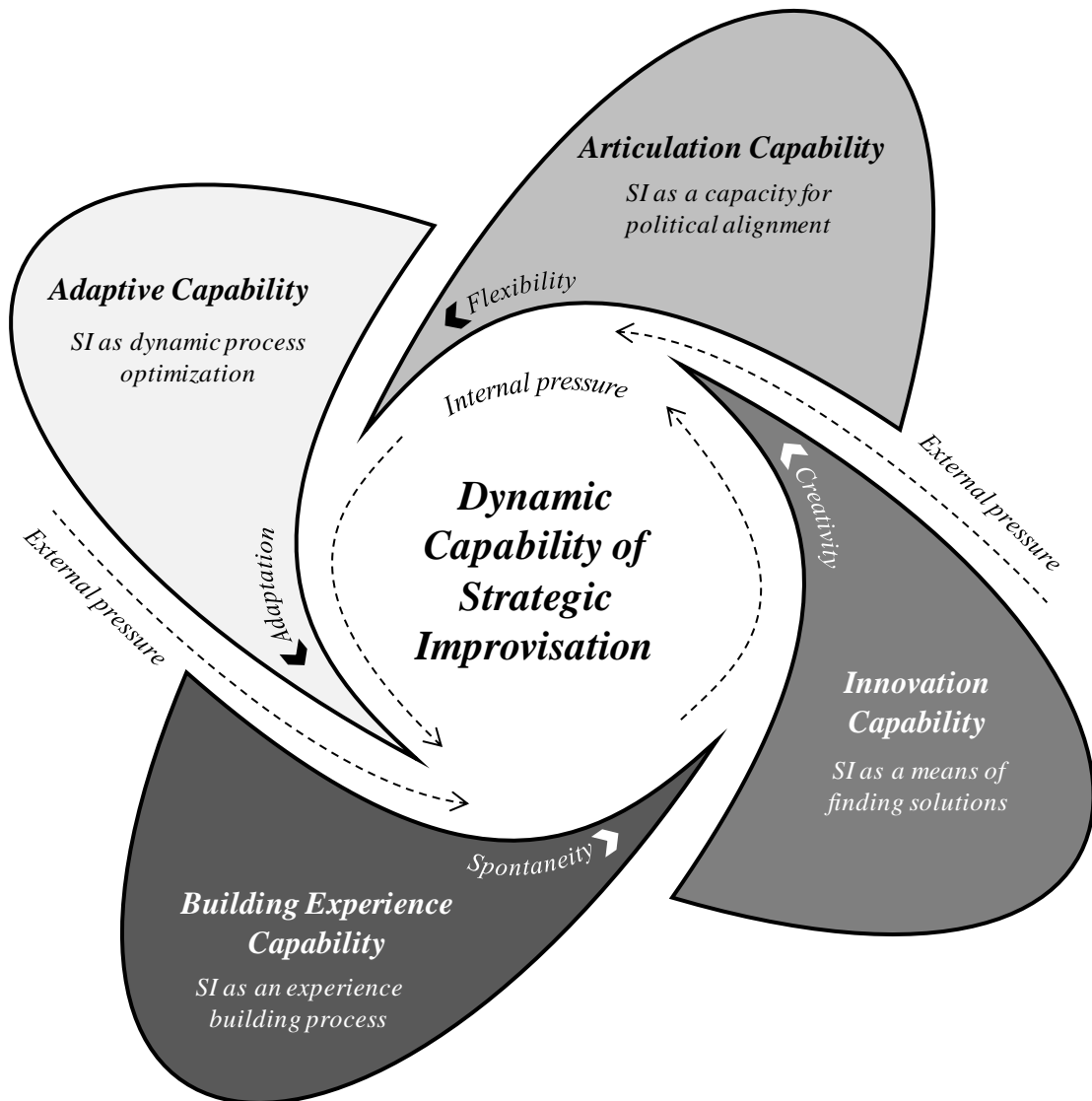
Figure 4 - Data structure

Figure 5 – Dynamic Capability of Strategic Improvisation



3 CONCLUSION

Strategic improvisation approach represents a new vibrant area for theoretical and empirical development. This study first presented the approach of a multifaceted SI through inductive research, whose concepts emerged from the ethnography experienced in an academic innovation project. After that, an integrative review was developed that highlights the main differences and concepts between organizational improvisation and strategic improvisation. The review and critique of the existing literature led to the representation of the strategic improvisation tree proposed in this study, which considers the relationship between the concepts of OI and SI in the review. Following, SI is also presented as a dynamic capability evidenced in the innovation project in the academic environment. It is the first research not only from the multi-faceted perspective of SI, but also as a dynamic capability in the academic innovation environment. This research also provides the first integrative review on this topic.

The main conclusions of this thesis are highlighted in nine points related to the strategic improvisation field. First, *the multi-facets of strategic improvisation involved strategy, operation and innovation practices*. These facets were evidenced within different aspects in the dynamic and complex contexts. Specifically, IS not only supported the strategy, but also manifested itself in the fluidity of operational processes and in the initiatives to foster engagement in innovative practices. It is evidenced through factors such as negotiations, communication ideas flow and leadership. In the fluidity of operational processes, the SI plays a fundamental role in the management of multidisciplinary, by articulating the political elements and finding solutions. Actually, it is an integrative way to promote process fluidity that influences the performance of innovation initiatives.

Second, *the SI is the scaffold of the strategy fulfilling gaps*. The scaffolding process essentially consists of supporting strategy, materialized in this study as a project of academic innovation through SI practices. Improvisation practices were adopted to feasibility the strategy, since the planning and execution process, besides converging in time and space, was constituted by a spontaneous, flexible and creative process. However, the multifaceted characteristics of SI play a key role in contributing to better outcomes for innovation initiatives. In essence, this study proposes the concept of SI as a process of challenging the existing or conventional ways of organizing to exploit an opportunity or deal with unexpected situations as “scaffolding” strategy as it unfolds. It does not necessarily mean replacing the initial plan, but making it more feasible by seeking to sustain the strategy and achieve better

results. This approach seeks better strategic results, arising from the process of convergence between plan and execution simultaneously.

Third, *SI as the “lubricant” performs a crucial role in providing fluidity to strategic processes*. The project implementation was nonlinear, loosely articulated, adaptable, flexible, and, at the same time, innovative. For each phase of the project, there was a practice of rethinking, adapting and evolving. The practice of strategic improvisation was the way to negotiate disagreements between suppliers, technical area and to establish flow in negotiations. Strategic improvisations as alignments produced a follow-up routine. These practices emerged fluidity through operational processes, based on knowledge of the institutional process and the articulation of human relations, discovered as a trigger for the review of processes.

Fourth, *SI as engagement in innovation practices*. The engagement construct is a crucial aspect to consider as it permeates an important mechanism of improvisation practices. Strategic improvisation was identified in the innovation process engagement as "rearrangements" of teams, aligning objectives and tasks of each specific area. Project awareness was unplanned, however, motivated to stress project priority by organizational units, it was achieved through informal negotiation, political articulation and constant communication, viewed as SI practices. These practices were characterized as SI because they were intentional, unplanned, focused on improving project performance to achieve the main strategy.

Fifth, *the SI framework focuses on opportunity, self-efficacy and performance*. Finding solutions and seizing opportunities is important in this process, however qualified performance from results is critical from this perspective. SI practices can be seen as the “sap” of the strategic improvisation tree from roots to branches feeds all levels of the organization. The process of supporting the plan in a dynamic context was recognized as structuring the strategy or macro objectives (trunk). Capillarization process is the main aspect of SI as a way to deal with ambiguities and divergences in a turbulent context (branches). SI plays an important role as a foundation to acknowledge its emergence and intervene when appropriate (roots). It is demonstrated the differentiation of the OI and SI approach in organization studies. One of the distinctions lies in the fact that the SI as a comprehensive way to achieve better performance.

While OI was considered a subset of innovation and experimentation (Du, Wu, Liu and Hackney, 2018) SI makes use of the experimentation process focusing on significant performance in dynamic contexts for organizational competitive advantage. Indeed, OI is a

valuable initiative to explore opportunities outside the conventional fields, creating new ideas (Fisher and Amabile, 2009), while SI is concerned with recognizing the performance of action from this experience. These two perspectives are complementary, as OI seeks opportunities and experimentation in dynamic and unexpected contexts, and SI seeks to seize these opportunities to recognize the results achieved from improvised practice.

Sixth, *the minimal structure approach is corroborated with the multi-facets of SI for simultaneous manifestation in the same context*. For this, the plan and execution converged in time, demonstrating that the role of minimal structures can be represented simultaneously at various organizational levels. This approach deserves further research. In addition to these structures, it is necessary to consider the "scaffolding" of strategy to develop the strategic process from the minimum structures. Both approaches are complementary. From minimal structures, strategy scaffolds assume their role by ensuring that the strategy is achieved as it unfolds.

Seventh, *the SI approach is a fundamental construct of complex adaptive systems*, regarding complexity theory. It is the key element in facing dynamic, unexpected and unpredictable contexts. Forecasting is inexact in a CAS (Tsoukas and Hatch, 2001; Stacey, 2011) because elements change, behaviour emerges and activities and relationships are nonlinear. Therefore, SI is efficient in dealing with the flexibility, adaptation and multidisciplinary of such systems. Elements such as self-organization, nonlinearity, simple rules and coevolution, characteristics of CAS, can be applied to strategic improvisation practices to sustain strategy as it unfolds and co-evolves in the system. SI was the answer in "organized for the unexpected" in the CAS analyzed in this study.

Eighth, *the importance of managing strategic processes with flexibility, adaptation and engagement of academic management*, as a theory of university management under construction (Keller, 1983; Meyer and Lopes, 2015). Planning and execution converge in time on many projects in the university context. Promoting strategic improvisation practices, based on minimal structures, especially when it involves academic innovation projects, is crucial. Multidisciplinary management, coupled with political articulation and the search for solutions makes the role of academic managers even more challenging. The process of "scaffolding" strategy of SI can promote interesting results without the need to fight for rigid and bureaucratic operational processes to ensure control, which in the academic context tend to be powerless. For this, minimally structured projects, particularly for academic innovation, is latent.

Ninth, *SI as a dynamic capability to manage innovation projects in dynamic organizations*. The multiple dimensions of SI as dynamic capability was evidenced as (i) an innovation and articulation capability; (ii) collective learning took place through the development of strategic improvisation as an experience building capability; (iii) the SI adaptive capability was promoted through the dynamic optimization process; and, (iv) innovation capability was developed as a means of searching for solutions. Autonomy, collaboration, and trust were essential elements working as a roadmap for establishing a fertile path for strategic improvisation. A conceptual model is proposed and integrates SI and dynamic capability into its different aspects. Strategic improvisation is valuable as a dynamic capability to manage innovation projects in dynamic and complex organizations such as HEIs.

It is evidenced throughout this study the importance of undertaking inductive empirical research to advance the conceptualisation and theorizing strategic improvisation. It is recognised that the theoretical progress of SI approach will be made through inductive and empirical research. It is important to highlight that the steps of this study were iterative, in which empirical findings cause a return to conceptualizations, and inductive research feeds future deductive studies. Given their novelty, these concepts and their articulation are now needed to be the object of more empirical research. There is, indeed, some previous research, but further development of the conceptual nature of these concepts and the practical implications for managers and organizations are necessary.

3.1 THE THESIS

Based on the concepts developed and results presented empirically in this study, this thesis contributes to the field of improvisation and strategic management. The following paragraph better summarize the contribution of this study.

The multi-facets of strategic improvisation consist of strategy scaffolding, lubricating operational processes and engaging in innovation practices. The SI framework focuses on opportunity, self-efficacy and performance based on minimal structure and manifested in the same context and simultaneously. To manage innovation projects in a dynamic environment, elements such as flexibility, adaptation and engagement are essential. For this, SI can be seen as an important dynamic capability to assist project managers in a better toolbox.

3.2 FUTURE RESEARCH

This research highlights the fundamental aspects to be considered for future researches. Based on empirical research on strategic improvisation, new theoretical windows can be offered. Many organizations have not yet strategies for adaptations or renewals. Rapid environmental changes have led to many organizational failures. In this context, it may be interesting to deepen the study of strategic improvisation as "scaffolding" of strategy in a turbulent context of change. Explaining different expressions of SI in different contexts represent a fertile field for future research.

Another way to be explored by future research is to examine the implications of strategy structuration by improvisation practices, including its effect on performance. In this perspective, it would be interesting to evaluate improvisation as the focus of promoting the sustaining strategy. It can be also examined in detail individual factors such as the roles of different governance modes for the strategic improvisation, perceived levels and degrees, in managing dynamic organizations. All of which contribute to the development of improvisation practices relevant for strategic management. The combination of responses from the OI and SI manifestations may provide additional insights into the field of improvisation.

Moreover, it is highly suggested to explore the strategic improvisation tree framework and its elements with possible relationships with constructs such as flexibility, creativity, intuition and spontaneity. This relationship can bring some insights into this field of study. These include expanding the dynamic capability approach into strategic improvisation research. Specifically, research may explore the SI as a dynamic capability in context of globalized and change firms.

Research questions that may be explored in future studies include: (i) Can SI manifest at different levels and degrees for each facet proposed? (ii) To what extent can the SI model be applied in a distinct organizational context from the academic? (iii) Is there a difference between the areas of academic management knowledge in applying the SI approach? (iv) How can organizational internal and external environments influence the manifestation of the SI? (v) How are elements of the strategic improvisation tree related to results in the dynamic organizational context? (vi) Is there any relationship between the performance of OI and SI? (vii) Is there any differentiation of level or degree in which the dynamic capability of SI manifests itself in innovation projects? (viii) To what extent can dynamic capability of SI be considered a competitive advantage in the context of innovation? (ix) What is the implication

of multidisciplinary management in developing the dynamic capability of SI? (x) What is the relationship between SI dynamic capability and high project performance?

3.3 MANAGERIAL IMPLICATIONS

Managing organizations in the context of turbulence and change is always challenging the managerial capacity to address uncertainty, policies, interest groups, and limited reasonableness. This makes strategic improvisation a crucial element of management in the powerful toolbox of managers. More than a science, management is an art and action. It requires creativity, flexibility, knowledge and agility. Autonomy and experimentation seem to be a promising path for managers to face dynamic environments. It is essential to encourage initiatives with room for improvisation in order to promote performance improvement.

The detailed formal plans prove to be limited and inefficient in this kind of environment. Under this context, managers should use the plan as a broad reference to guide organizational actions and seek to adapt it, as it tends to become obsolete as time goes by. The strategy can be sustained not by the longer plan detail but by the initiatives on practices that are developed as the execution takes place. Strategic improvisation can be a fruitful way to seize opportunities, foster innovation and generate fluidity contributing, therefore, to the improvement of organizational performance.

As practical implications for managing innovation projects, the dynamic capabilities of SI provide some interesting insights. Given the growing dynamics of organizations, it requires and emphasizes the ability of managers to continually adapt and learn new skills and competencies within a diversity of context. In a dynamic and changing context, the ability to anticipate future trends and adaptability becomes even more critical for all stakeholders. The competence of managing complex projects lies in knowing how to deal with technical skills, human relations, and political articulation in unexpected and unpredictable situations. Elements such as flexibility, adaptability and learning are essential to achieve effectiveness and better performance in complex systems, once obstacles are overcome by managers.

In this sense, managers are required greater dynamic capability based on complex problem-solving skills, social and system skills and less on specific technical skills. Organizations demand a new perspective on their ability to operationalize their processes quickly and agile to promote better results. The human factor in this process assumes the role of a creative, dynamic and autonomous being who acts strategically to achieve results. Robotics and managerial pressure for bureaucratic models in complex systems dehumanize an

individual's ability to spontaneously, flexibly and collaboratively promote innovation outcomes. Giving strategic improvisation practices the maximum space to emerge can make all the difference in managing dynamic contexts. As organizations become more flexible and dynamic, they become places of experimentation and powerful hubs for turning new ideas into performance.

3.4 LIMITATIONS

This study has some limitations that require recognising. The generalization of the results of this study may be limited as only one higher education institution was selected as the sample respondent. Different types of organizations may require future research because results may vary from this study. Having an academic innovation project as a unit of analysis shows the conditions of dynamic environments and the involvement of the improvised approach during the strategic management process. Other contexts may lead to different conditions and effects on improvisation. In addition, different results may be obtained in different countries and, as such, care should be taken to generalize the results in contexts significantly different from those examined in this research.

4 APPENDIX

4.1 APPENDIX 01 - INTERVIEW SCRIPT

Date: ____ / ____ / ____

Start Time: ____ : ____

End Time: ____ : ____

CHARACTERIZATION OF THE INTERVIEWED

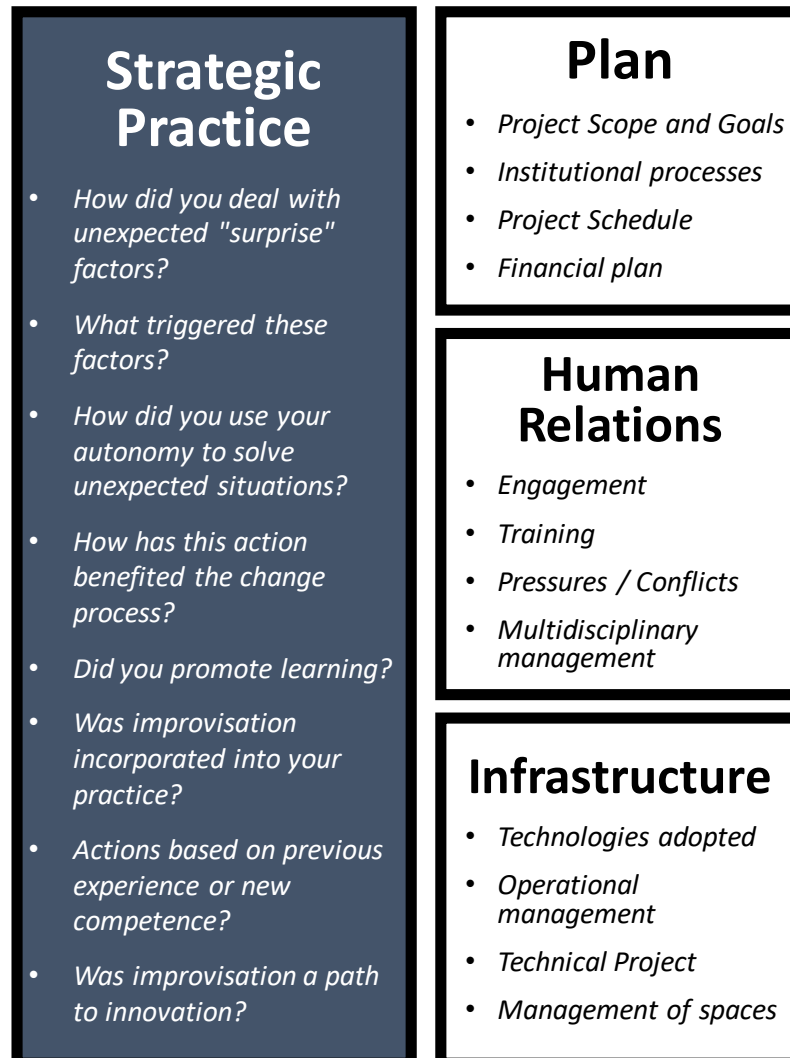
- a) Genre ☐ Male ☐ Female
- b) Position / Function: ☐ Professor ☐ Coordination
☐ Director ☐ Manager ☐ Specialist Technician
- c) Complete level of education:
☐ Technical Education ☐ Lato Sensu Postgraduate
☐ High School ☐ Master's degree
☐ Higher Education ☐ PhD degree
- d) Higher Education Experience Time:
☐ Up to 1 year ☐ From 3,1 to 6 years ☐ From 10,1 to 15 years
☐ From 1.1 to 3 years ☐ From 6,1 to 10 years ☐ Over 15 years
- e) Time of experience at this University:
☐ Up to 1 year ☐ From 3,1 to 6 years ☐ From 10,1 to 15 years
☐ From 1.1 to 3 years ☐ From 6,1 to 10 years ☐ Over 15 years
- f) What phase did you get involved in the project?
☐ Conception ☐ Operationalization
☐ Planning ☐ Approval / Tests ☐ All phases
- g) What phase did you participate in the project?
☐ PHASE 1 ☐ PHASE 3 ☐ PHASE 5
☐ PHASE 2 ☐ PHASE 4 ☐ PHASE 6
- h) How long did you get involved in the project?
☐ Less than 6 months ☐ From 1.1 year to 2 years
☐ From 6 months to 1 year ☐ From 2.1 years to 3 years

CONTEXT

1. What was your role in this project?
2. Have you had any previous experience with similar projects?

RESEARCH FOCUS: IMPROVISATION PRACTICES

Cards with some key elements for conducting ethnographic interviews



GLOBAL PERCEPTION OF THE PROJECT

1. What would you do differently in the project? (Considering all areas or your specific)
2. Can you name two words that define for you the project implementation period?

4.2 APPENDIX 02 - OBSERVATION SCRIPT

Date: ____ / ____ / ____

Start Time: ____ : ____

End Time: ____ : ____

PARTICIPANT OBSERVATION SCRIPT:

1. What decisions are made and aligned with planning?
2. What decisions have been made that have been adapted to planning?
3. What is the reason for the project adaptations?
4. Was there any resistance to change from what had been planned?
5. How do the areas represented contribute new alternatives to add to the project?
6. Do participants easily absorb these alternatives?
7. What kind of conflict occurred in discussing changes and adjustments to the project?

PRACTICE OF ACTIVE METHODOLOGY AND ACADEMIC INNOVATION

8. What kind of actions in practice have been adapted to planning?
9. What was the perception of those involved regarding these actions that were adapted?
10. Did you notice any gains in the adaptation process compared to the proposed planning?
11. How did those involved in the practice of active learning position themselves (students, teachers, ...)?
12. Did you present any resistance, difficulty or conflict in the face of adaptations?
13. What discussion and decision actions were promoted between project coordination and participants?
14. Was there any political influence (negotiation, disagreement, ambiguity, etc.) on project practice?