



GENDER AND IMPROVISATION MANAGERIAL SITUATIONS IN A PROJECT CONTEXT: A COMPARATIVE STUDY BETWEEN TWO COUNTRIES (FRANCE-SENEGAL)

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Abstract

This article is interested in the managerial approach of projects. Its purpose is to study the influence of gender when actors involved in projects face managerial situations that are sources of organizational improvisation. It starts from the triple observation of a emergence of several situations problematic and contextualized generated by the project activity and requiring new skills from the actors who are responsible for it, a masculinization of project management practices and a growing number of women who come to positions of power in projects.

We conducted a quantitative questionnaire survey of 377 project actors (including 84 in Senegal) who experienced 6107 managerial situations. After having constructed the variable "organizational improvisation" with the two variables "uncertainty" and "temporal pressure", the chi-square independence tests with the X-SAT solution made it possible to identify project management situations that organizational improvisation. Variance analyzes make it possible to note statistically insignificant gender differences when actors working in a project context face improvising situations. In the context of improvisation, the level of study of the actors interviewed plays a predominant role where age has very little influence.

Keywords : Managerial Situation; Project; Gender; Organizational Improvisation; France; Senegal.

1 Introduction

If the project can be understood as a series of predictable steps that can be planned to meet the deadlines that have been set (Eisenhardt and Tabrizi, 1995), a single process consisting of a set of coordinated and controlled activities with dates of beginning and end undertaken in order to achieve a goal that meets specific requirements (Afnor X50-115, 2002), it should be noted that today, it has largely institutionalized. It is now the subject of a diversified and prolific academic research (Leroy, 2006). Indeed, many of its dimensions have been studied in literature (instrumental, organizational, cognitive, psychological, human, etc.). With regard to the human dimension and more specifically gender studies, they are far behind empirically. Moreover, those known have precisely highlighted gender-related cultures (Gale and Cartwright, 1995), obstacles faced by women in project management (Garrido, 2001), gender ideologies (Gill, 2002; Buckle and Thomas, 2003, Styhre, 2011), the gender construction phenomenon (Lindgren and Packendorff, 2006), gender differences (Henderson and Stackman, 2010) among others. Most of them, which were carried out in the European context, often reported some negative gender discrimination (salary treatment, careers, etc.). Considering the African context, we can observe a relative ignorance of research on gender in project and project management in general¹.

¹ It's in particular advocacy in emancipation or even promotion of women that dominate the speeches.

Yet it seems useful to look at the project from a gender perspective for a number of reasons. Indeed, this one brings out several problematic and contextualized situations generated by its activity (Leroy, 2006) and which doubtless require new skills including improvisation from the actors who are responsible for it. Also, works show a masculinization of project management practices (Buckle and Thomas, 2003) related to the strong male ideology. Moreover, in this specific context, women are increasingly occupying positions of responsibility (Neuhauser, 2007), and it is legitimate to ask what influence gender could exert when actors involved in projects face improvisational type of management? More specifically, this research aims to identify management situations that are sources of improvisation and to understand the effects of gender when actors working in a project context face such situations. As a first step, the theoretical foundations and the methodological aspects of the research are highlighted. In a second step, the results are presented and discussed in relation to the literature and the study context.

2. Theory and Hypotheses

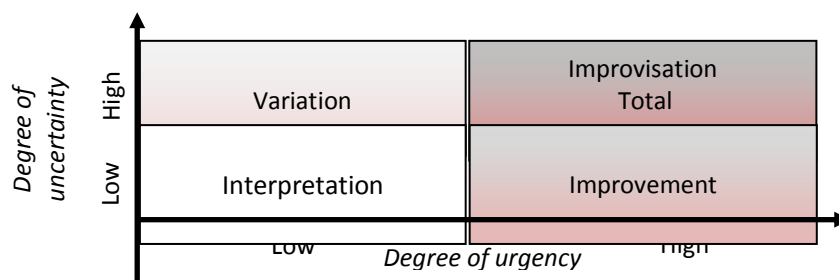
This section presents the theoretical foundations of the concepts of research: improvisation, project management situations, gender in a project context.

2.1. Improvisation and Project Management Situation

If there is a concept that has generated the most work in many management disciplines², it would be improvisation. Indeed, in the managerial field, this term has been analyzed in strategy (Eisenhardt, 1997), in organizational learning and knowledge management (Schön, 1983), in entrepreneurship (Hmielski and Corbett, 2008) and recently in project management (Leybourne and Sadler-Smith 2006, Chedotel et al., 2015; Vignikin et al., 2016). This improvisation can be done at the collective, organizational level but also at the individual level (Joffre et al., 2006). In all cases, improvisation puts the individual at the heart of the process, allowing him to create new situations and then evaluate the results of his action in a specific context and over a relatively short period of time (Chédotel, 2004). This conception of action can be deployed by an organization and / or its members by taking available material, cognitive, affective and social resources (Cunha et al., 1999). In this sense, Moorman and Miner (1998) argue that improvisation is the responsibility of an individual, and therefore of a person, a group of individuals or even an organization. In the particular field of the Leybroune and Sadler-Smith (2006) projects, apprehending improvisation as referring to the way in which thoughts and actions are coordinated along the way in order to respond to environmental cues show that the more actors have to experience in projects, the more they resort to improvisation.

Considering the literature, improvisation is very often analyzed to different degrees depending on two fundamental characteristics of the dynamics of the environment (Cunha et al., 1999, Davis et al., 2009). These include uncertainty and time pressure ("which we associate with the degree of urgency of the situation considered in the context of this study"). Indeed, considering some works (Weick³, 1998, Joffre et al., 2006, Vignikin et al. 2016), we propose to analyze these degrees of organizational improvisation according to the degree of uncertainty (low / high) and the degree of urgency. emergency (low / high) that can characterize a situation in the fields of management (see Figure 1).

Figure 1 : Matrix of analysis of the different degrees of improvisation of a situation in project management



Source : Inspired and adapted from Vignikin et al. (2016)

The scenario of "total improvisation" appears when the actors working in a project context have no time and are no longer able to decipher the situation in question, forcing them to spontaneously invent new approaches to deal with it contrary to the scenario. of "interpretation" where the level of improvisation is almost non-existent. In this case,

² Let us point out with Adrot (2010) that the concept of improvisation today covers varied and evolving realities that have been the subject of multiple analyzes and conceptualizations.

³ The literature shows that Karl Weick owes the construction of a hierarchy of collective improvisation scenarios at four levels: interpretation, improvement, variation and total improvisation.

they just need to interpret to bring appropriate routines to the situation, while in the first case, they are certainly obliged to fabricate and invent new responses without prior plan and without guarantee of results; discover the future on the road (Barrett, 1998). This is particularly suited to very turbulent contexts when the survival of the project depends on its ability to change continuously (Chédotel, 2005).

Similarly, to the extent that project actors have time, they can highlight a series of ideas that [offer] them the opportunity to understand the situation (Weick, 1995) as they do not 'enough means to deal with the uncertain. They can then adapt or even plan all the steps for this purpose (Cunha et al., 1999) as they have time. This improvisation scenario remains relatively high ("variation"). That of moderate improvisation ("improvement") corresponds to the case where the actors have little time to cope with a situation whose degree of uncertainty is low. As the situation requires immediate (rapid) intervention, they will just search for known or less creative solutions. From the above, we consider improvisational situations as new and / or unknown ones generated by the project activity whose actors have neither enough time nor tools, allies to face them. This requires creative solutions from them. If these situations are related to project management, then they constitute "problematic" and "contextualized" situations, also called "managerial situations" (Leroy, 2006). In this sense, it is about management situations (Girin, 1990) that are specific because they are linked to the managerial activity that is also part of the large family of situations (Schuman, 1987, Journé and Raulet-Croset, 2008).

Considering these managerial situations proper, they are often novel, urgent, determining, evaluated and formative (Leroy, 2006). Some are more influential than others. For example, situations such as crisis management, contingencies, conflicts, decision-making in a situation of uncertainty, the eviction of a collaborator would require strong improvisational capacities whereas this would not seem to be the case for situations capitalization or reporting. In any case, if to "cope with the situation" (Journé and Raulet-Croset, 2008) the actors working in a project context develop strategies of meaning-making in action (Weick, 1995) or sometimes use their circumstances to perform an intelligent action (Suchman, 1987), it goes without saying that their behavior will certainly be influenced by several variables including gender but also age, level of training, their experience in the project context, etc. This study is therefore in line with the work of some authors (Schuman, 1987, Girin, 1990, Leroy, 2006, Journé and Croset, 2008, Chedotel et al., 2015; Vignikin et al. 2016) to study, more specifically the improvised project management situations from a gender perspective. To better examine them, it is useful to focus on gender research projects.

2.2. Gender Literature in Project Context

In the projects several fields have been explored. The aspects studied often concerned the instrumental, organizational, cognitive, psychological, strategic, human, etc. dimensions. More specifically, with regard to this human dimension, most studies have emphasized the skills needed for good project management (Boudès et al., 1997, taken over by Garel et al., 2001; Garel et Midler, 2012), especially in terms of improvisation to cope with certain problematic and contextualized situations generated by the project activity (Leroy, 2006) but also the consideration of the collaboration of all the project's actors in order to promote their creativity (Fernandez, 2018). However, very few works have been devoted to gender issues.

Indeed, Gale and Cartwright (1995) in examining gender-related cultures globally show that women faced more problems than their male counterparts in gaining entry and acceptance in corporate environmental projects (industries). They rarely occupy certain positions of responsibility such as that of construction site manager (Styhre, 2011, 948). They are virtually underrepresented in all projects, all sectors except the financial services sector, where they have an acceptable representation (47.9% versus 52.1% for their male counterparts), the best according to Gale and Cartwright (1995). Considering the number of contracts obtained, the price of the service rendered for example, they are clearly losing compared to men the sector of the new media (Gill, 2002) informs the author. In the building sector, Styhre (2011) explains this strong masculine ideology by the work situation endured by the site managers characterized by a commitment in each virtual activity in the building site, a marked attention to solve the rather heroic problems, an anticipation problems of bureaucratic activities, overtime justified by overwork, etc. Buckle and Thomas (2003) argue that these male aspects and conceptions (independence, autonomy, competitiveness, analytical and impersonal resolution of a problem, etc.) exert more direct influence on the content of the project management practices as defined. in the PMBoK than those called women (appreciation of the sharing of power and information, democratic and participatory decision-making, creation of cooperative frameworks, etc.). All in all, these different analyzes make it possible to relate the discrimination often suffered by women as a result of the masculinization observed in project management practices.

As a result, in order to succeed in these types of organization, some authors, like Garrido (2001), state that women should improve their image, develop self-control and take advantage of management styles that take into account the specificity of the project context. Others such as Lindgren and Packendorff (2006) suggest resistance (a shift that would be driven / forced from above) and improved human resource management practices in project-based firms to counter the masculinization of society. . Moreover, Henderson and Stackman (2010) emphasize that

women / team members can be perceived as the most appropriate in the conceptualization of the core team especially in the projects developed by the industrial companies where they are historically under represented.

If, finally, organizational literature shows that to avoid the male pitfalls and reduce the dilemma of gender role incongruity, women would adopt transformational leadership behaviors to the detriment of transactional leadership, source of male behaviors, authoritarian, etc. (Yoder, 2001, Eagly and Karau, 2002), this does not seem to be the case in a project context. Indeed, by performing a parallelism between the characteristics of transformational leadership and those of the feminine, and between the characteristics of transactional leadership and those of the masculine, Neuhauser (2007) specifies that women project managers, for better manage their projects, privilege transactional leadership and other management skills (to manage time, conflicts, etc.) that reflect more masculine characteristics rather than the transformational leadership traditionally associated with the feminine gender. As a result, it is legitimate to think that the project would then appear as fertile ground favoring the development of new managerial skills. Be that as it may, we are seeing with Neuhauser (2007) more and more women in positions of power in Senegal projects than in France. This study is also part of this work and proposes to study from a gender perspective, behavior in organizational improvisation when the actors involved in projects face management-related situations.

2.3 Formulation of Hypotheses to Study Improvisational Managerial Situations from a Gender Perspective

This study proposes to associate to each category of managerial situation a degree of improvisation. To recall, we mobilized the degree of uncertainty and the temporal pressure to inform the degree of improvisation of the managerial situations. To understand uncertainty, one of the fundamental characteristics of the dynamics of the environment (in the sense of Davis et al., 2009), three variables can be considered. These variables will be: "novelty", "unpredictability" and "indeterminacy" (or "non-mastery"). "Novelty" and "indeterminacy" refer to the singularity of the project (Girin, 1990) for which actors can't apply organizational routines or even have no appropriate methods or techniques to do this. The "unpredictability" dimension reduces the ability to apprehend situations, events or phenomena that disrupt initial patterns (in the sense of Galbraith, 1974).

Similarly, in the case of research projects, some authors show that improvisation is an item of feminine ideology (Buckle and Thomas, 2003). Others, studying the overwork of projects, argue that the masculine ideology could be characterized by the capacity of the individual to deal with new situations, unforeseen events (Styhre, 2011) say situations with high uncertainty. In any case, the study by Leroy (2006) highlights a taxonomy of managerial roles including an "improvising" role of the project actor in order to better deal with unprecedented, unpredictable, urgent, high-stakes situations. and for the resolution of which it is strongly expected by officials often ignorant of the context of the action. Considering these works, it is legitimate to think that, in the project context, improvisational type behaviors would rather be made up of individuals with a strong masculine and feminine ideology, that is, actors with androgynous profiles. In other words, the project moderates the effects of gender when the actors who are responsible for it face managerial situations potentially sources of improvisation. Thus, three hypotheses are formulated in this study :

Hypothesis 1 (H₁) : There is an association between categories of managerial situations and different degrees of improvisation regardless of the project context.

Hypothesis 2 (H₂) : In a project context, there are statistically insignificant gender differences when actors face management situations that are sources of improvisation.

Hypothesis 3 (H₃) : In a project context, age and level of education have a positive influence when men and women face managerial situations that lead to total improvisation.

Once these assumptions are made, the methodological aspects are first highlighted and then the results are presented and discussed.

3. Methodological Aspects of the Research

This section presents the data collection process and the methodological choices for building the improvisation variable in a project context.

3.1. The Data Collection Process and the Description of the Sample

Case studies (Styhre, 2011), life stories (Lindgren and Packendorff, 2006), and comparative studies (Gill, 2002) have often been used to analyze gender aspects in projects. Most of these works used either the deconstruction technique (Buckle and Thomas, 2003), the questionnaire (Neuhauser, 2007, Henderson and Stackman, 2010) or the interviews (Gill, 2002, Styhre, 2011) as main techniques for collecting information.

This study uses data from the observatory⁴ on the managerial situations experienced by the actors working in the context of projects collected by questionnaire from 2010 to 2015. Anyone involved in a project (s) could answer the questionnaire. Our research focuses in particular on two contexts (French and Senegalese) each presenting some peculiarities in the collection of information. Indeed, in the French context, most of the actors interviewed were professionals who had come to train in quality management and projects at IAE Tours. Considering the Senegalese sample, the actors interviewed mainly worked in development projects (education, health, energy, etc.). In the absence of professional associations, we have been able to put a lot of effort into identifying the target people first. Subsequently, we opted for face-to-face questionnaire administration to avoid significant response bias. A total of 377 people made up the sample, of which 31.21% were women on average (33.95% in the French context against 22.28% in the Senegalese context). 6107 managerial situations were analyzed during the period of which 1436 lived in Senegalese context. 15.94 situations are met on average by the project actors working in the French context (against 17.09 in Senegal).

3.2. Construction of the "Improvisation" Variable in a Project Context: a Methodological Heuristic

In order to identify managerial situations that are sources of organizational improvisation, a methodological heuristic was used to construct the degree of organizational improvisation from the variables "uncertainty" and "temporal pressure" (Davis et al., 2009). Thus, as the literature does not clearly show the weight that each of them should represent to build it, four types⁵ of calculations were made to measure the degree of uncertainty, as indicated in the box below :

Combination P : degree of uncertainty = degree of unpredictability
Combination Q : degree of uncertainty = 0.25 * degree of novelty + 0.75 * degree of unpredictability
Combination R : degree of uncertainty = 0.5 * degree of novelty + 0.5 * degree of unpredictability
Combination S : degree of uncertainty = 0.33 * degree of novelty + 0.33 * degree of unpredictability + 0.33 * degree of indeterminacy

The comparison between these different combinations makes it possible to retain the one that, combined with the degree of urgency, best discriminates the different degrees of organizational improvisation. Subsequently, chi-square independence tests are performed using the XLSAT software between the "managerial situation category" variable and the "improvisation degree" variable in order to identify the various managerial situations that are sources of organizational improvisation. Once these situations have been identified, analysis of variance is carried out with the SPSS software in order to understand the influence that the gender can exert when the actors involved in projects face such situations. The following section presents and discusses the main findings.

4. Results and Discussions

Before identifying managerial situations that are sources of organizational improvisation, we first analyzed the correlations between the variables used to construct the degree of improvisation of managerial situations.

4.1. Analysis of the Correlations between the Dimensions of the Managerial Situations Mobilized

The results of the analysis of the bivariate correlations summarized in Table 1 show that the three variables selected (novelty, predictability and indeterminacy) to analyze the degree of uncertainty of the managerial project situations are positively and significantly correlated with each other at the 1% level. In other words with the data used, there is a 99% chance that these results are not due to chance. Also, each of these variables is positively and significantly correlated with urgency, another fundamental feature of environmental dynamics (Davis et al., 2009) although it is quite weak. It should be noted that these bivariate analyzes do not make it possible to record significantly problematic correlations, that is to say that exceed the threshold of 0.7 (Evrard et al., 2003).

⁴ It should be noted that the data from this observatory derive from the international research project (Brazil, Canada, France, Morocco and Senegal) on the managerial situations experienced by the actors working in the project context in which we participated. The objective of this research was the international validation of the taxonomy of 22 situations that Leroy (2006) constructed on the basis of a "virtual" observation methodology.

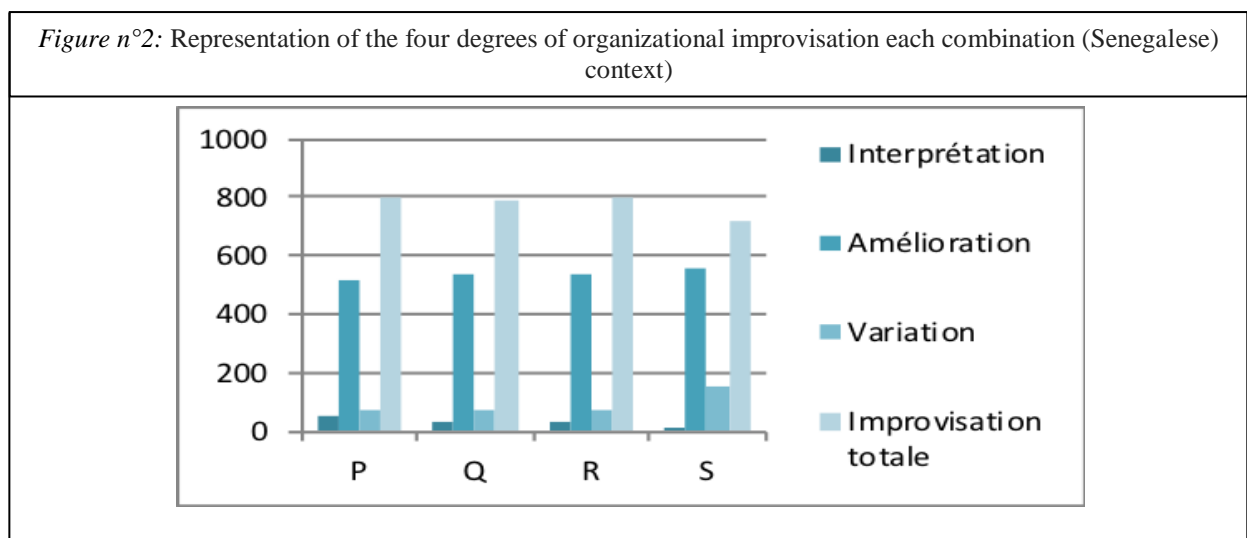
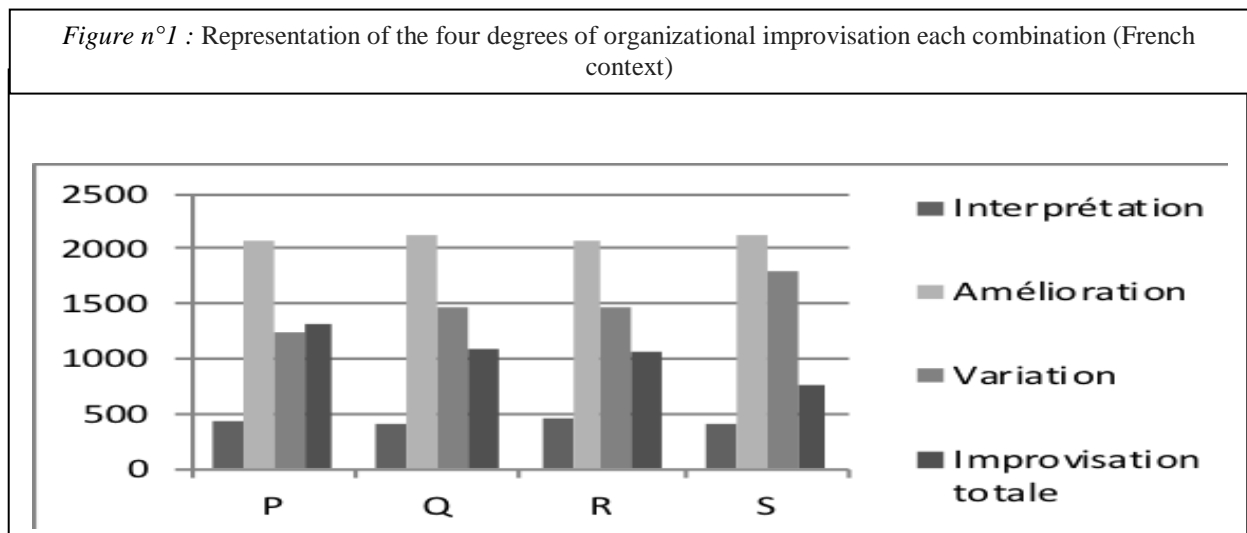
⁵ It must be emphasized that we have done programming with Excel to ensure that each degree of organizational improvisation of managerial situations can correspond to the appropriate degrees of uncertainty and urgency. For example, to visualize an "improvised" situation, its degree of uncertainty should be ≥ 3 (strong) and at the same time its degree of urgency should be ≥ 3 (strong), etc.

| Table 1 : Correlations Between the Dimensions of Managerial Situations | | | |
|------------------------------------------------------------------------|---------|-----------------|-----------|
| | Novelty | Indetermination | Emergency |
| Unpredictability | ,514** | ,514** | ,106** |
| Novelty | | ,491** | ,156** |
| Indetermination | | | ,098** |

** : Pearson's correlation is significant at the alpha threshold =1%.

4.2. Improvisation Managerial Situations

To understand the influence of gender when actors working in the context of a project face improvisational managerial situations supposes, to first identify such situations. The methodology adopted makes it possible to compare four combinations in order to retain the one that discriminates the most the degree of improvisation as shown in the two figures below:



Indeed, taking into account each context, these representations show that the combination P even if it discriminates well the different degrees of improvisation, overrepresents the managerial situations sources of improvisation.

Given that we do not have enough information more specifically about emerging situations that may prevail in a project context to better understand the level of uncertainty in these activities "by exception", this combination will not be retained. Considering the combination S, it under-represents the situations of organizational improvisation but does not discriminate enough degrees of improvisation in each context. This under-representation can be explained by the variable "non-mastery" already taken into account by the variables "unpredictability" and "novelty".

As for the Q and R combinations, which also take into account the unpredictability and novelty of the managerial situations, they remain similar and provide more information on the level of uncertainty. More precisely, we retain the combination R, which would seem not only to discriminate more the degrees of improvisation in each context but also proposes a more balanced weighting in the use of the variables unpredictability and novelty. As a result, the degree of improvisation of the managerial situations experienced by the actors working in the project context will be calculated as follows⁶ :

$$\text{Degree of improvisation} = \text{degree of uncertainty} + \text{degree of urgency}$$

$$\text{With degree of uncertainty} = (\text{novelty degree} + \text{degree of unpredictability}) / 2$$

The figure n° 2 which follows makes it possible to make a representation of the degree of improvisation of the managerial situations, considering the variables novelty, unpredictability and urgency.

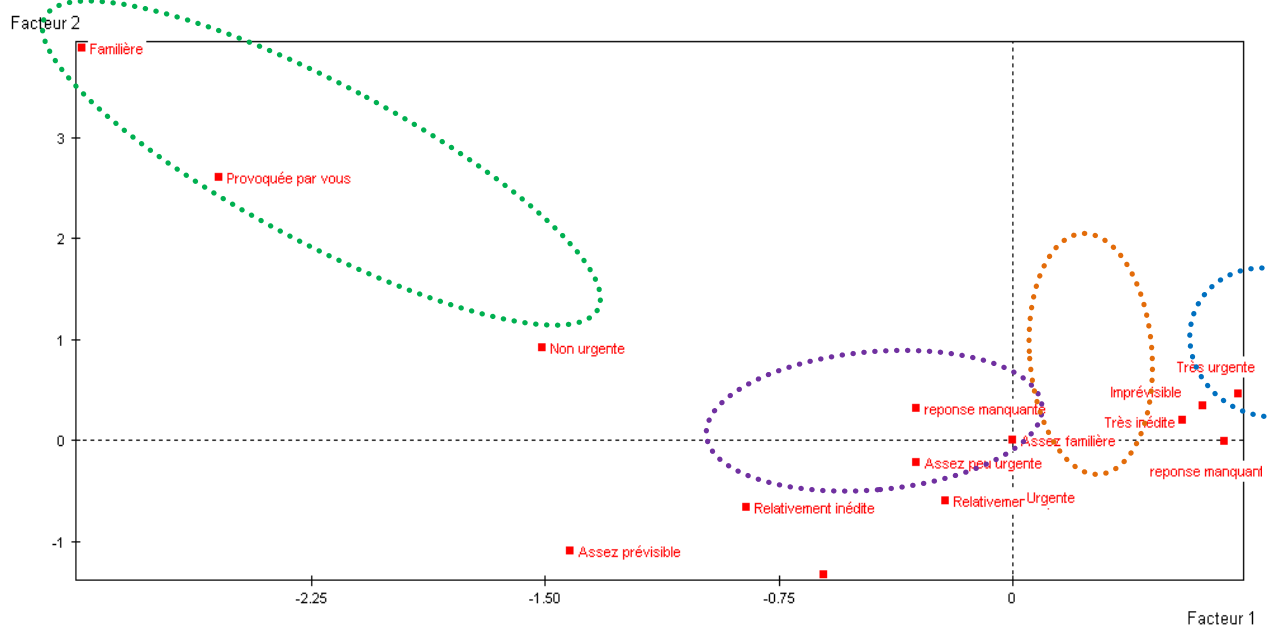


Figure n°2 : factorial map between the dimensions of managerial situations and the degrees of improvisation

Indeed, the results of the factor analysis with the SPAD software make it possible to categorize the managerial situations according to the dimensions that are: the novelty, the unpredictability and the urgency. Thus, the circle in "green" represents situations with almost no improvisation that is to say those (fairly) familiar, predictable and whose resolution is non-urgent. On the opposite side, the circle in "blue" evokes the situations of total improvisation that are new, unpredictable and very urgent to solve. The circle in "purple" characterizes situations with moderate improvisation. That is to say those of a low level of uncertainty but for which the project actor has little time but a low level of uncertainty. Finally, the "red" circle represents relatively improvised situations: the level of uncertainty is certainly high, but the actors can adapt if they have time.

Thus, just like Vignikin (2013), we propose to determine the degree of uncertainty of the managerial situation from its degree of unpredictability and novelty. Consequently, a managerial situation would, in practice, present a (very) high degree of improvisation when it appears to be fairly or very unpredictable, fairly or very novel and whose resolution remains fairly or very urgent for the progress of the project. Similarly, when a managerial situation is fairly or very predictable, fairly or very familiar and whose resolution is little or not urgent for the progress of the project, then his degree of improvisation would be considered (very) low. Given this, it is now possible to test

⁶ It should also be noted that these two variables (novelty and unpredictability) are positively and significantly correlated with each other.

hypothesis 1 (H1: there is an association relation between categories of managerial situations and different degrees of improvisation in a project context). It is more particularly to test the null hypothesis (H0: absence of relation the category of managerial situation and the degrees of organizational improvisation).

The results of the chi-square independence test show that since the calculated p-value (0.0001) is less than the alpha significance level = 1%, the null hypothesis must be rejected and the alternative hypothesis accepted. that is to say, the existence of a significant relationship between the category of managerial situation and the degrees of improvisation. In other words, for each category of managerial project situation, it can be associated with a degree of improvisation: anything that can identify situations that lead to organizational improvisation as indicated in Tables 2 and 3.

| Table 2 : Chi-square independence test between each category of managerial situation and each degree of organizational improvisation (French context) | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|-------------|----------------|
| Categories of managerial situations | Total Improvisation | Variation | Improvement | Interpretation |
| Decision making in imperfect information | 2,711 | 5,209* | 1,267 | 0,652 |
| Cross-functional collaborations | 6,847* | 2,032 | 1,627 | 1,620 |
| Evaluation of a collaborator | 0,394 | 1,856 | 0,007 | 2,787* |
| Motivation of a collaborator | 3,026 | 1,843 | 0,606 | 3,514 |
| Eviction of a collaborator | 37,232* | 0,441 | 7,290* | 5,737* |
| Negotiation with internal actors | 3,478* | 1,979 | 0,009 | 0,275 |
| Negotiation with external actors | 0,492 | 0,810 | 0,312 | 3,006 |
| Internal/External Communication | 0,564 | 0,145 | 0,066 | 1,020 |
| Reporting | 2,092 | 0,020 | 3,031* | 1,524 |
| Creativity | 0,127 | 0,540 | 3,553* | 4,583* |
| Strategic Meeting Management | 4,202* | 1,614 | 0,215 | 0,019 |
| Informative meeting Management | 3,509* | 0,671 | 0,572 | 0,047 |
| Participatory meeting Management | 0,291 | 0,156 | 0,424 | 1,610 |
| Structuring of collective action | 0,775 | 0,885 | 0,877 | 1,093 |
| Organization/prioritization of Time | 1,062 | 1,092 | 0,198 | 0,414 |
| Conflict management | 3,904* | 0,678 | 3,222* | 5,172* |
| Crisis management, randomness | 0,790 | 0,400 | 6,501* | 27,004* |
| Questioning the order | 0,483 | 0,933 | 1,001 | 2,111 |
| Bottom-up project argumentation | 7,482* | 4,948* | 2,300* | 11,608* |
| Delegation | 3,170* | 0,201 | 1,077 | 0,084 |
| Evaluation | 3,383* | 4,996* | 0,002 | 1,220 |
| Capitalization | 1,214 | 4,972* | 0,334 | 1,198 |
| Other | 0,700 | 3,155* | 0,001 | 19,479 |
| * Significant values at alpha level = 5%. In in italics, managerial situations that bring more improvisation | | | | |

Table 3 : Chi-square independence test between each category of managerial situation and each degree of organizational improvisation (Senegalese context)

| Categories of managerial situations | Total Improvisation | Variation | Improvement | Interpretation |
|------------------------------------------|---------------------|-----------|-------------|----------------|
| Decision making in imperfect information | 20,889* | 14,487* | 10,106* | 7,507* |
| Cross-functional collaborations | 0,003 | 1,064 | 8,600* | 0,126 |
| Evaluation of a collaborator | 0,008 | 0,421 | 4,683* | 1,033 |
| Motivation of a collaborator | 2,684* | 1,986 | 0,747 | 1,482 |
| Negotiation with internal actors | 6,095 | 4,672* | 2,374 | 1,677 |
| Negotiation with external actors | 1,117 | 3,611* | 0,850 | 1,540 |
| Internal/External Communication | 0,673 | 0,478 | 0,002 | 1,657 |
| Reporting | 2,864* | 1,093 | 4,084* | 1,657 |
| Creativity | 2,646 | 3,620* | 0,246 | 1,267 |
| Strategic Meeting Management | 0,333 | 0,012 | 3,892* | 0,213 |
| Informative meeting Management | 0,149 | 0,101 | 3,748* | 0,178 |
| Participatory meeting Management | 11,505* | 12,096* | 1,027 | 1,638 |
| Structuring of collective action | 0,000 | 0,378 | 0,850 | 1,540 |
| Organization/prioritization of Time | 0,673 | 0,000 | 4,084* | 1,657 |
| Conflict management | 30,460* | 14,184* | 15,141* | 47,177* |
| Questioning the order | 19,569* | 9,496* | 0,000 | 102,928* |
| Project argument bottom-up | 13,433* | 10,630* | 12,168* | 0,036 |
| Delegation | 0,500 | 0,016 | 1,705 | 1,384 |
| Evaluation | 1,001 | 1,529 | 0,528 | 1,131 |
| Capitalization | 1,551 | 1,826 | 0,061 | 0,116 |

* Significant values at alpha level = 5%. In *italics*, managerial situations that bring more improvisation

Indeed, if in the contexts studied, the situations of "conflict management" and "bottom-up project argumentation" (ie an idea emanating from a decentralized actor outside the deliberate and formalized strategy) are correlated with practically all the degrees of improvisation, those of "internal / external communication" and "structuring collective action" are with no degree of improvisation. The situations of "cross-functional collaborations", "negotiation with internal actors", "management of strategic meeting", "management of informative meeting", "delegation" and "evaluation" are correlated with the potential improvisation in the French context as well as those of "decision-making in imperfect information", "motivation of a collaborator", "negotiation with the internal actors", "reporting", "creativity", "participative meeting management", "questioning the order" (to dare to remove the ambiguity, to qualify the problem to solve, the project objectives...) are rather in the context of Senegal. It is not surprising that the situation of "eviction of a collaborator", correlated also with the potential for improvement and interpretation, is one of those situations that brings total improvisation even if it has not been met by project actors working only in the French context. What would be atypical is the "management of crises, of contingencies", correlated only with

the potential for improvement and interpretation, and which emerges only in the same French context. This situation could be explained by the content of the item.

In Senegal, if "decision-making in imperfect information" is also correlated with the potential for variation, improvement and interpretation, the "animation of transversal collaborators", the "evaluation of a collaborator", the "Strategic meeting management", "informative meeting management" and "time organization / prioritization" are only with the potential for improvement where "negotiation with external actors" remains only correlated with the potential for variation. In the French context, the results also show that this "decision-making in imperfect information" is only correlated with the potential for variation as well as the "capitalization". Similarly, "creativity" is correlated with the potential for improvement and interpretation while "reporting" is only with the potential for improvement and "negotiation with external actors" with no degree of improvisation.

4.3. An Absence of Gender Effects when the Actors Involved in Projects face Management Situations that lead to total Improvisation

Tables 4 and 5 summarize the results from the analysis of variance. Indeed, the results show that management situations that are sources of total improvisation do not have any gender effects in the contexts studied since the calculated p-value (0.533 in the French context against 0.192 for Senegal) is above the threshold. $\alpha = 10\%$. Our work leads to the same conclusions when managerial situations are significantly correlated with the potential for improvement in a project context. However, it should be pointed out that there are statistically significant differences at the $\alpha = 10\%$ threshold between men and women involved in projects in Senegal and in France when they face management situations that are significantly correlated with the potential of interpretation (low degree of improvisation) and variation (relatively high degree of improvisation).

| Table 4 : Comparisons between men and women when they face improvisational managerial situations in Senegalese context | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------|------------|----------|----------------|----------|----------------|
| Degree of improvisation of situations | Sex | N | Average | F | sig. |
| Total Improvisation | Men | 635 | 7,231 | 0,388 | 0,533 |
| | Women | 165 | 7,194 | | |
| Variation | Men | 57 | 5,553 | 6,221 | 0,015** |
| | Women | 12 | 5,958 | | |
| Improvement | Men | 407 | 5,100 | 0,354 | 0,552 |
| | Women | 132 | 5,148 | | |
| Interpretation | Men | 17 | 2,818 | 3,293 | 0,081* |
| | Women | 11 | 2,471 | | |
| (**) and (*) : Significant values respectively at the alpha level = 5% and 10%. | | | | | |

| Table 5 : Comparisons between men and women when they face improvisational managerial situations in a French context | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------|------------|----------|----------------|----------|-----------------|
| Degree of improvisation of situations | Sex | N | Average | F | sig. |
| Total Improvisation | Men | 460 | 6,639 | 1,699 | 0,192 |
| | Women | 241 | 6,705 | | |
| Variation | Men | 948 | 5,105 | 7,06 | 0,007*** |
| | Women | 508 | 5,006 | | |
| Improvement | Men | 1368 | 4,310 | 0,003 | 0,953 |
| | Women | 688 | 4,312 | | |

| | | | | | |
|---------------------------------------------------------------------------------|-------|-----|-------|-------|----------------|
| Interpretation | Men | 309 | 2,437 | 6,027 | 0,014** |
| | Women | 149 | 2,54 | | |
| (***) and (**): Significant values respectively at the alpha level = 1% and 5%. | | | | | |

Considering the level of total improvisation of the men and women when they face the situations generated by the project activity, we wanted to understand if the control variables such as the age or the level of studies of the actors had a special influence. The results are shown in Tables 6 and 7.

| Country | Actors | <= 35 years | | | > 35 years | | |
|-----------------------------------------------|--------|-------------|--------|---------------|------------|--------|-------|
| | | Avg. | t | sig. | Avg. | t | sig. |
| France | Women | 6,771 | -1,306 | 0,192 | 6,573 | 0,512 | 0,609 |
| | Men | 6,681 | | | 6,615 | | |
| Senegal | Women | 6,944 | 1,760 | 0,080* | 7,288 | -0,365 | 0,715 |
| | Men | 7,155 | | | 7,262 | | |
| (*) : Significant value at alpha level = 10%. | | | | | | | |

| Country | Actors | < Bac +4 | | | ≥ Bac + 4 | | |
|--------------------------------------------------------------------------------------------|--------|----------|--------|-----------------|-----------|--------|----------------|
| | | Avg. | t | sig. | Avg. | t | sig. |
| France | Women | 6,780 | -1,836 | 0,068* | 6,641 | -1,864 | 0,063* |
| | Men | 6,613 | | | 6,793 | | |
| Senegal | Women | 5,833 | 3,086 | 0,005*** | 6,131 | 2,24 | 0,025** |
| | Men | 7,167 | | | 6,369 | | |
| (***), (**) and (*) : Significant values respectively at the alpha level = 1%, 5% and 10%. | | | | | | | |

Table 6 shows that the comparison of the averages of men and women given their age does not allow to note statistically significant differences in the French context. Considering the Senegalese context, the tests lead to the same conclusions for the older ones. However, statistically significant differences are observed in the youngest age group (up to 35 years old). This can be explained by the weight of professionals in the French sample who have come to train in quality management and projects. If not, why would they come ?

Table 7 shows that the level of education of men and women plays an important role when they use improvisation to cope with managerial project situations in any context. In other words, whether they have only a bachelor's degree or another higher diploma, the results show statistically significant differences in averages (at the alpha threshold = 10%) between men and women. However, with a lower risk of error (alpha = 5%), the differences observed are no longer significant considering the French context. The study also shows that in Senegal, it seems that men are more likely to improvise than women, regardless of their level of study.

All in all, these results do not make it possible to refute hypothesis 1 (H1: there is an association relation between categories of managerial situations and different degrees of improvisation regardless of the project context) as well as hypothesis 2 (H2: in a project context, there are statistically insignificant gender differences when actors face management situations potentially sources of improvisation). Regarding hypothesis 3 (H3: in a project context, age as well as the level of studies has a positive influence when men and women face managerial situations that lead to total improvisation), it is partially refuted.

5. Conclusion

The purpose of this article was first to identify project management situations that are sources of organizational improvisation and then to understand the effects of gender when actors face such situations.

The results show that it is possible to associate to each category of managerial situation a degree of improvisation. Depending on the context studied, situations with more organizational improvisation change. Indeed, if in the French context the situations of "transversal collaborator animation", "eviction of a collaborator", "negotiation with internal actors", etc. require more strong improvisational skills, these same capacities should be put to use in the Senegalese context when actors face situations of "decision-making in imperfect information", "motivation of a collaborator", "creativity", "participative meeting management", "questioning the order", etc.

The results of the analysis of variances show that the gender of the interviewed actors does not present significant effects when they face these improvisational situations as well in the French context as in Senegal. The age of the actors interviewed has very little influence in the context of improvisation. On the other hand, the level of study of men and women plays a predominant role when they resort to improvisation. By making it possible to apprehend managerial situations of project favoring an organizational improvisation, the study suggests to the actors to develop androgynous behaviors. We also believe that they should make use of strong cognitive and relational qualities to better take into account the requirements of these temporary organizations. Similarly, if the project is unique by nature, taking into account the variable "nature of the project" seems relevant because we are convinced that construction-type projects would not require the same improvisational skills compared to service projects.

From a methodological point of view, the hypothetico-deductive approach adopted as well as the adopted method of the genre can be discussed. Finally, to comprehend gender as a whole would be to analyze the historical, cultural and social construction of sex (Fourgeyrollas-Schwebel et al., 2003). Through an in-depth qualitative study, we could detect the impact of the "socialization process" dimension of the genre when the actors use improvisation in project mode. Therefore, an effort of contextualization would deepen the results and would allow better visualization of the variables of the kind and their level of influence on the improvisation in the context of project because we are convinced that the national cultures have a certain influence on the kind being given that it is built socially, so changes over time.

6. References

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