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ScienceDirect
International Journal of Project Management 34 (2016) 902 – 913
International Journal of Project Management
www.elsevier.com/locate/ijproman

Exploring the management style of Brazilians project managers

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Received 30 November 2015; received in revised form 7 March 2016; accepted 21 March 2016

Abstract

This research aims to identify the management style adopted by project managers. We conducted factor analysis to refine the data and to identify the management style most commonly used by project managers. Lastly, we ran Levene's test, one-way ANOVA analysis, and Kruskal–Wallis test to make assumptions considering gender and organizational sector in a sample of 129 project management practitioners. We notice that most project managers state a reactive and determined management style and give importance to interaction between parties. Brazilians project managers may desire to minimize their loss in the time of financial instability. The results present that there is no significant change for gender and organizational sector. This finding proves that regardless of gender or organizational sector, they have similar judgment about how they manage people and projects. The relevance of studies regarding management style remains, particularly for the Brazilian scenario where the literature on this subject is embryonic, and where the current economic situation is passing through. The results of this study produce insights for project managers interested in developing management abilities.
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Keywords: Management style; Project management; Project managers; Organizational behavior; Survey

1. Introduction

Projects are challenged by dynamic environmental conditions and technological advances. Interest in project management is growing significantly, and, as a consequence, different disciplines, competences, and skills are now required from project management practitioners (Thomas and Mengel, 2008; Garel, 2013). People who make up organizations have a key role in ensuring that organizational objectives are achieved. Therefore, successful project managers must have personal flexibility and the skills to vary their behavior according to the individual needs and motives of their staff.

Project managers must provide ways to achieve a project's objectives. According to Anantatmula (2010) 'a project manager's role is more challenging than that of a typical functional manager. And management and leadership style can affect project success (Muller and Turner, 2009; Anantatmula, 2010; Bejestani, 2011). Management style and organizational culture are aligned, and a company's management style is a reflection of its identity (Olmedo-Cifuentes and Martínez-Léon, 2014).

The new requirements to change the management style are based in five fundamental changes: develop a customer-oriented culture; create business strategies that emphasize differentiation; redesign business processes; manage knowledge and information; and develop new leadership styles (McCarthy et al., 2005). In this study, we are interested in a group of competences reflecting managerial attitudes of project managers.

This article presents an exploratory study of current management styles adopted by project management practitioners, based on four dimensions of management style. This research aims to understand the behavior of project managers regarding different management styles and to find out if there is an adoption of, or preference for, a particular style. Additionally, we explore this behavior/these attitudes according to several determining factors. This paper also claims that professional project managers can improve their competences and achieve better results by knowing and understanding different management styles, even if they are not aware of or faithful to a particular style.

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http://dx.doi.org/10.1016/j.ijproman.2016.03.002
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The profession of project management is growing in several industries and organizations, as are its new challenges, so we cannot design a unique effective way to conduct projects. In addition to technical and operational performance, human factors are imperative in order to understand what provides a better outcome for future projects.

According to Klijn et al. (2008), the conceptual relevance and the potential knowledge of applying the management style construct to project managers can be established through attention to how the project manager approaches the issue, for example, the degree of flexibility in operating the management process and relationships with other actors.

This paper is structured as follows. Following this introduction, the second topic is a brief review of the literature regarding management style in project management. Third topic, material and methods, shows how the sample was chosen, the type of survey that was used, the questionnaire scales, the validation process, and statistical tools used. The fourth topic is about results and is divided into two parts for better understanding. In part 1, factor analysis was applied to evaluate the data regarding the four dimensions of management style (Klijn et al., 2008), and in part 2 questionnaires were analyzed and related to two factors: gender and organizational sector in order to know if there are changes in how the respondents manage people and projects. The fifth topic concerns discussions about achievements, followed by sixth topic with the main conclusions and limitations.

2. Management style in project management

In this section, we describe some models of management style. Subsection 2.1 describes five models of management styles, explaining how they classify each style. Subsection 2.2 presents the choice, critique, and justification of the model of management style applied in this research.

2.1. Models of management style

Project managers have many roles and responsibilities, inherent and learned skills, and their behavior is affected by personal, social, and economical bias. Academia and practitioners are still exploring what makes a good manager and a good leader. Theorists and practitioners agree that management influences human performance, but the specific dimensions have not been pinpointed precisely. ‘A management style is a way of life operating throughout the enterprise and permits an executive to rely on the initiative of the personnel of an entity’ (Nwadukwe & Court, 2012, p. 199).

The literature on project management has taken an increasing interest in the behavior and competencies of project managers regarding the success of projects (Thite, 2000; Muller and Turner, 2007). According to Harvey and Turnbull (2006), a management style can be developed to support a low-cost strategy, combining a low-cost operating system and higher quality service.

On the other hand, few works have been dedicated to understanding the relationship between management style and its impact on the success of the project. For example, Kocher et al. (2013) say that management style and the relation between managers and subordinates affect team success. Shenhar (1998) states that a carefully selected management style may increase the chance of project success. However, none of these studies relate management styles with factors as gender or organizational sector. We must find which management style is appropriate and if the project managers change their behaviors in front of the differences.

Hereafter, five models of management styles have been proposed. These studies give us support to raise our research question regarding if it is possible to design a management style for project managers.

According to Driver et al. (1990), the information and the number of alternatives are the main factors to be considered when defining the appropriate management style. One can adopt five styles with regard to the decision-making process. They are

- Decisive style—This uses little information to make decisions. Conversations and actions are relatively straightforward, and there is mitigation planning. There is no respect for hierarchy; there is a preference for organizations with well-defined tasks; problems are solved one at a time and the style is driven by results.
- Flexible style—This is similar to the previous style in that it uses little information. However, it tries to analyze different aspects, termed as adaptive, flexible, and creative; it prefers an organization with little structure and rules; few jobs are defined, and decisions are usually based on group discussions.
- Hierarchical style—This makes plans at the right time, making maximum use of information to achieve the single best solution. It is classified as a detail-oriented and centralized controller and is concerned with the methods to be used and the expected results.
- Integrative style—This is the kind of style where there is excessive use of information. Individuals in this group are concerned with generating a greater number of possible alternatives for the decisions; the decisions are very open to modifications, leading to a delay in decision making. There is a preference for less rigid organizations, and projects are usually long and well-developed, and accepting facts and opinions as information.
- Systemic style—Since this kind of style is characterized by being complex and difficult to understand, there is a combination of the qualities of integrative style with hierarchical style. Individuals do not delegate, exercising influence or controlling information. The manager emphasizes priorities and detailed strategies to address the problems, and there is short-term planning with specific and measurable goals.

There is also a theoretical perspective explained by axes of graphs that correspond to the individual’s preferred choice in two areas and with four permutations (Slabey and Austrom, 1998). The two areas are (1) acting or thinking and (2) using proven methods or using new methods (in example, patterned and unpatented methods) and the four permutations are Reactive Stimulator, Logical Processor, Hypothetical Analyzer, and Relational Innovator.

- Reactive Stimulator (RS): RS individuals are action-oriented, focused on short-term results, and highly productive in the initial stages of their work.
- Logical Processor (LP): Pure LP individuals display an orientation towards methodical action using proven methods. Process repetition makes LPs expert in their specific job function.
- Hypothetical Analyzer (HA): Pure HA individuals tend to be thought-oriented, approaching problem solving with a great deal of analysis and planning. Contingencies and multiple viewpoints are considered, so errors are usually minimized.
- Relational Innovator (RI): Pure RI individuals generate new ideas and think associatively when problem solving. They tend to move quickly from one idea to the next, but can maintain focus while inventing a solution to a given problem.

In accordance with Klijn et al. (2008), there are four types of management, and they are based on the following elements: interaction with parties, strategic orientation, style of management, and process dynamics. The management styles are determined by

- Results–interaction: Actions are mainly aimed at achieving results or at achieving good relations.
- Internal–external: The orientation is more internal (the project organization itself) or external (other actors involved).
- Reactive–proactive: The manager is more likely to react to other initiatives or take the initiative himself.
- Flexible–determined: The project manager has clear goals or adapts to new circumstances.

Another management style approach to decision making was explained by Loewe et al. (2005) and divided in five styles: Cauldron, Spiral staircase, Fertile field, PacMan, and Explorer.

- Cauldron—leaders can catalyze entrepreneurial energy to make the group repeatedly challenge everything about the organization.
- Spiral staircase—managers can innovate constantly. A spiral staircase rises in its chosen business while seeming to stay in the same place.
- Fertile field—'the managers focus on finding new uses for existing strategic assets and competencies' Loewe et al. (2005, p. 116).
- PacMan—PacMan investors gobble up entrepreneurial start-ups and assemble coherent competencies for the future.
- Explorer—'It keeps its investments smalls at first, but achieves its goals through a series of relatively low-cost probes' Loewe et al.(2005, p. 116).

According to Olmedo-Cifuentes and Martínez-Léon (2014), there are two types of management styles: participative and competitive.

- The participative style is more democratic and focused on relationships. The superior's attitude is based on consultation, and consideration with the organizational goal and the members involved.
- The competitive style is more autocratic and task-oriented. The manager is focused on each organizational member and the completion of goals, and aims at reducing communication and transmission of information.

Culture is another important factor to understand organizational behavior. According to Pagell et al. (2005), p. 378), 'Culture matters in projects and in operations management.' Cultural studies in Brazilian companies show that Brazil, United States, and United Arab Emirates have strong levels for all four culture value dimensions based on Hofstede (1980), whereas Thailand, Nigeria, and the United Kingdom appear to have weak levels on all four dimensions (Chipulu et al., 2014). As a result, they found that this does not affect the ability of project managers to perform good management and achieve good results. As stated by Bredillet et al. (2010), the project management is best implemented in countries with low power distance and uncertainty, and individualism and masculinity/femininity dimensions do not impact them.

According to Patah & Carvalho (2009, p. 179), the Brazilian companies surveyed do not have a defined process of choosing the organizational structure in their organizations and the organization structure can have influence on business strategy and its management. According to Oliveira & Muylder (2012, p. 510), 'there is a low desire for structural change in Brazilian public organizations'. The high degree of bureaucratic regulation generates a conflict with organizational initiatives. Therefore, studies relating the management style with types of organizational structure are relevant but in Brazilian scenario where most public sector organizations are based on functional organizational structure, there is a resistance to the implementation of project management practices because the situation in Brazilian companies still is embryonic. 'This type of organizations needs an extensive process of training in project management' (Esquierro et al., 2014, p. 9).

Another important factor is the Brazilian economic position in the global economy. According to Ribeiro et al. (2014) studies have noted the appearance of the born global firms in different places of the world. Brazilian companies have been influenced by the integration into global production chains; the partnerships and strategic alliances for innovation; and the governmental policies. Brazilian studies show the incorporation of new ventures into the global production chains, for example, in Brazilian software industry and in the Brazilian aircraft manufacturing sector.

According to Sui & Sun. (2015, p. 459) 'the five major emerging national economies, including Brazil, Russia, India, China, and South Africa (BRICS), increase interconnectedness with the global economy through trade flow and capital flow'. As stated by Gabaix and Maggiori (2015), if the flow in Brazil is strong and risk-bearing is low, the Brazilian goods can be uncompetitive and this causes an economic slump.

Emerging markets, like the Brazilian one, have a process of structural reform and rapid economic growth. But, due to the financial crisis, the Brazilian GDP (gross domestic product) slowed from 4.5% in 2006–2010 to 2.1% over 2011–2014, and 0.1% in 2014 and the inflation remains high at 6.4% (World

Bank, 2012). Brazilians have noticed this decline and must try to overcome the obstacles.

2.2. Choice of model: Critique and justification

Despite all the models presented in Subsection 2.1 being good frameworks to assess the management style of project managers, many of them are limited by labeling project managers in a particular style.

The Klijn et al. model presents a different characteristic. They classify four types of management style in a continuum of characteristics. This allows us to know specific characteristics of project managers regarding each type of observed factor. This same continuum can be misinterpreted if the researcher does not correctly evaluate the scales to be used in your research.

We measure the management style of Brazilian project managers based on an adapted version of the Klijn et al. model. We design a questionnaire taking into account the assessment of each dimension proposed by Klijn et al.. The questionnaire is explained in Section 3.3.

3. Materials and methods

In this section, we describe the methodology of our study in three subsections. Subsection 3.1 describes the measurement of the constructs, explaining how we executed the rate scale, validation process, and creation of hypotheses. Subsection 3.2 presents information about sample manipulation. Subsection 3.3 details how we ran the statistical analysis.

3.1. Measurement of constructs

The management style was measured primarily based on an adapted version of Klijn et al. (2008), composed of statements reflecting attitudes of project managers, and related to the four dimensions of management styles: Results × Interaction, Reactive × Proactive, Internal × External, and Flexible × Determined, on a 5-point itemized rating scale with values of 1–5, where 1 means strongly agree, 2 means agree, 3 means neither agree nor disagree, 4 means disagree, and 5 means strongly disagree. We chose to use the model proposed by Klijn et al. because we believe that this model of management style takes into account extreme sides of the personality of project managers. The number of points that should be used by researchers remains unclear (Wethers et al., 2005). However, since Likert's publication in 1932, his scale has been the most popular because of the number of classifications that a human being can distinguish between without becoming confused. But, in order to obtain a more accurate statistical analysis of the application tests, the agreement scale was suppressed to three scales (agree, neither agree nor disagree, and disagree).

In terms of construct validity, the alpha value found was 0.7107, an acceptable value according to Streiner (2003) who states that the minimum acceptable value for reliability is 0.70. The validation process was carried out with postgraduate students. The validation process is important because it allows the researcher to make certain adjustments before the application of the questionnaires in the real sample. They are students who attend an MBA program in project management from Federal University of Pernambuco, Brazil. These students are basically executives from companies and they are returning to study to improve their knowledge in the area.

Given our research objective, we framed a research question. This research question intends to identify the most commonly applied management style according to the dimensions of Klijn's managerial work (Klijn et al., 2008).

RQ: Is it possible to design the management style most commonly applied by project managers?

We also seek to observe if management styles change according to determined factors, such as gender and organizational sector (public and private). The observations aim to assess our two hypotheses:

H1. Brazilian project managers change their management style according to gender.

H2. Brazilian project managers change their management style according to organizational sector.

3.2. Survey sample

The target population of this study was project managers who were involved in managing projects. The sample considers the views of a group of project managers from Brazilian companies.

The research methodology of this paper is an exploratory survey with a non-probabilistic intentional sample. The questionnaire is the tool chosen for this research. This questionnaire was administrated manually and through an electronic link personally sent to participants of the sample based on their relation with projects.

This study aims to explore the current practices of management styles, in order to identify the attitudes of project managers regarding their styles of management, based on Klijn's managerial dimension (Klijn et al., 2008).

A diagnosis of management styles can help practitioners to organize and coordinate projects in a clear way. We identified the style most commonly applied style by this group to understand if these project managers change their styles according to the environment.

3.3. Survey administration

The data analysis was developed using tools of statistical methods. The questionnaires were applied to companies in Brazil, where project management professionals were interviewed, with a total sample of 129 valid responses. Questionnaires were sent to 324 project managers, and the internal rate of return of the questionnaires was 39.81%. We asked twenty-nine questions about each dimension of the Klijn et al. model that allowed us to detect the respondents' preference for each management style. We grouped these questions according to each studied dimension of management style. The first questions are about the dimension Results × Interaction; the second questions are about the dimension Reactive × Proactive; the third questions are about

the dimension Internal × External; and the fourth questions are about the dimension Flexible × Determined. It can be seen in Table 1 of Section 4 that we designate short names to each variable that represents the questions. For more information, see the Appendix A.

We carried out a multivariate analysis, especially factor analysis, in order to identify the management style most commonly used by project managers, especially factor analysis with the four dimensions of Klijn's managerial work (Klijn et al., 2008). Also, we applied Levene's test to evaluate differences between gender and one-way ANOVA analysis to evaluate differences between organizational sectors. Finally, we applied the Kruskal–Wallis test to this sample in order to verify the relationship between gender and organization sector factors (nominal variables) and the four dimensions of management style (ordinal variables). The Kruskal–Wallis test is used to examine the relationship between two or more variables X and Y. Therefore, the Kruskal–Wallis test is appropriate for this analysis because it can relate nonparametric ordinal categorical data to nominal variables. Spearman's correlation analysis was used to relate some affirmatives (ordinal data) with nominal variables. In all cases moderate associations were presented to justify their use.

Our data present a sampling distribution of the mean approximately normal according to the central limit theorem (Brase and Brase, 2015). We use non-parametric tests when the homogeneity of the data has not been attested by Levene's test; however, when the homogeneity was detected, we applied one-way ANOVA analysis. The non-parametric test follows the same general procedure as parametric.

4. Results

We present in this section the analysis of the collected data from the questionnaires. Subsection 4.1 details the analysis from factor analysis in order to identify the most commonly applied management style and Subsection 4.2 describes the research findings resulted from the observation and consideration from our two hypotheses.

4.1. Observations regarding management style

Initially, factor analysis was applied to evaluate the data, unraveling the existing structures that were not observable directly. As a result, this research aims to identify the most commonly applied management style through the study of the four dimensions of Klijn's managerial work. This sample is composed of 94 men and 35 women. 70% of them are from public organizations and 30% are from private organizations.

The preparation process for the factor analysis began by choosing the extraction method, type of analysis, choice of factors, and explanatory power. The results were as follows.

The value of significance (sig. or p-test) close to zero indicate that it is possible to assume factor analysis. It is recommended that the significance test (Sig) should not exceed 0.05. The KMO test (Kaiser–Meyer–Olkin) or MSA (measure of sampling adequacy) showed a value above the necessary level of 0.500 (0.783), which is the restrictive value of factor analysis application. When value is lower than 0.500, factor analysis cannot describe the variation of the data.

The anti-image matrix indicates the explanatory power of the factors in each variable. Initially, 4 variables below 0.50 were found and removed because they were considered too small for analysis. After the third attempt, as can be seen in Table 1, values above 0.500 can be considered for analysis.

In Fig. 1, a scree plot shows the eigenvalues on a curve indicating that eight factors can explain all variables from the sample. The scree plot shows the power of explanation of the variability when the line starts to straighten. Eight factors with eigenvalues above 1.0 (factor 1—5.445, factor 2—3.307, factor 3—1.706, factor 4—1.478, factor 5—1.227, factor 6—1.1017, factor 7—1.067, and factor 8—1.017) can explain all the variables of the sample.

One of the tests performed by factor analysis is the degree of explanation achieved by the factors that were calculated according to the total variance explained. The model shows that eight factors can explain almost 66% of the variance of the original data (65.725), and this percentage is considered satisfactory because it indicates the high degree of explanation

Table 1
Anti-image matrix.

	Variables			
Anti-image correlation	Var 1—Prioritization	.687a	Var 17—Internal guidelines	.878a
	Var 2—Results	.598a	Var 18—Possibilities	.678a
	Var 4—Concerning	.748a	Var 20—Clear objectives	.771a
	Var 5—Relationship	.718a	Var 21—Responsibility	.726a
	Var 6—Tasks	.733a	Var 22—Collaboration	.869a
	Var 9—Conclusions	.801a	Var 23—Flexibility	.709a
	Var 10—Changes	.854a	Var 24—Solicitous	.79a
	Var 11—Initiative	.660a	Var 25—New options	.863a
	Var 12—Management approach	.816a	Var 26—Develop actions	.764a
	Var 13—Better way	.824a	Var 27—Determination	.844a
	Var 14—Project surprises	.772a	Var 28—Project achievement	.797a
	Var 15—View of project	.634a	Var 29—Safe and convict	.818a
	Var 16—Listen	.687a		

a. Measures of Sampling Adequacy (MSA).

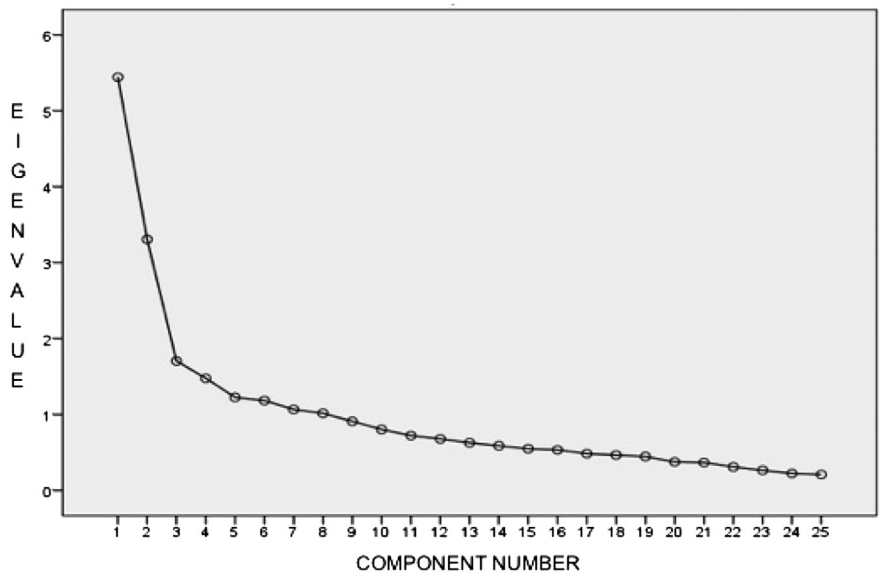

Fig. 1. Scree plot.

by the eigenvalues. These values are indicated in boldface in the rotated component matrix that enables verification of which factors can best explain each variable of the problem. The extraction method used was principal component analysis, which resulted in 25 components extracted. Varimax criterion was used together with the extraction method of principal component analysis with normalization Kaizer. The rotation converged after thirteen iterations, as can be seen in Table 2.

Table 2
Rotated component matrix [a].

	Component							
	1	2	3	4	5	6	7	8
VAR1	.080	.107	.226	.160	.035	.283	**.686**	−.042
VAR2	.101	**.701**	−.043	−.269	−.107	−.114	.304	−.015
VAR4	.109	−.045	**.749**	−.117	.055	.073	.277	−.089
VAR5	.032	.049	**.676**	.150	.094	.126	−.068	.429
VAR6	−.123	**.734**	.012	.229	.088	.053	−.086	.057
VAR9	**.721**	.166	−.120	−.063	.047	.003	.182	.127
VAR10	**.501**	−.454	.095	−.196	.085	.099	.333	.294
VAR11	−.047	.110	.092	.044	.235	**.777**	.030	.089
VAR12	**.604**	−.536	.126	.042	.031	−.072	.045	.123
VAR13	.043	−.094	**.610**	.405	.105	.006	.196	.031
VAR14	**.511**	−.262	−.170	.013	−.082	−.009	.018	.510
VAR15	.013	−.009	.190	**.709**	.115	−.107	.164	.129
VAR16	−.012	.093	−.064	**.719**	.098	.339	.021	−.135
VAR17	**.593**	−.409	−.082	−.046	.135	−.068	.280	.115
VAR18	.087	−.320	.023	.216	**.695**	−.023	.041	−.092
VAR20	.148	−.013	.165	.010	.047	.091	.182	**.825**
VAR21	.105	−.064	.057	.060	−.057	**.754**	.239	.023
VAR22	.228	−.086	.063	.085	.070	.077	**.673**	.220
VAR23	.142	.040	.301	−.198	**.677**	.108	−.078	.120
VAR24	−.129	.055	.233	.307	**.374**	.355	.343	.126
VAR25	−.358	**.565**	−.082	−.007	.019	.326	−.061	−.340
VAR26	−.013	.136	−.060	.170	**.690**	.097	.112	.005
VAR27	**.787**	−.065	.153	.016	.062	.009	.111	−.095
VAR28	**.578**	−.043	.439	.368	−.026	.051	−.143	.063
VAR29	**.646**	−.186	.404	−.020	−.003	.142	−.153	.312

Extration method: principal component analysis.
Rotation method: varimax with Kaiser normalization.
[a] Rotation after 13 iterations.

This initial statistical analysis was proposed in order to find the management style most commonly adopted by project managers through each dimension of Klijn's work (Klijn et al., 2008). Each factor corresponds to a cluster of indicators that should be evaluated. The test grouped each statement in eight factors, as can be seen in Table 2, in order to understand the management style most commonly adopted, answering the research question.

Factor 1 consists of the following statements: Variable 9 (Conclusions), Variable 10 (Changes), Variable 12 (Management approach), Variable 14 (Project surprises), Variable 17 (Internal guidelines), Variable 27 (Determination), Variable 28 (Project achievement), and Variable 29 (Safe and convict). The Factor 2 consists of Variable 2 (Results), Variable 6 (Tasks), and Variable 25 (New options). The Factor 3 consists of Variable 4 (Concerning), Variable 5 (Relationship) and Variable 13 (Better way). The Factor 4 consists of Variable 15 (View of project) and Variable 16 (Listen). The Factor 5 consists of Variable 18 (Possibilities), Variable 23 (Flexibility), Variable 24 (Solicitous) and Variable 26 (Develop actions). The Factor 6 consists of Variable 11 (Initiative) and Variable 21 (Responsibility). The Factor 7 consists of Variable 1 (Prioritization) and Variable 22 (Collaboration). Moreover, Factor 8 consists of Variable 20 (Clear objectives).

According to factor analysis, the four dimensions (Results × Interaction, Reactive × Proactive, Internal × External, and Flexible × Determined) can be identified in Table 2. We explore factors 1, 3, 4, and 6 because they grouped a highest number of affirmatives and they are relevant for the next suppositions.

Factor 1 considers one proposition about Results × Interaction dimension (variable 9: Conclusions); three propositions about Reactive × Proactive dimension (variables 10: Changes, 12: Management approach, and 14: Project surprises); one proposition

Table 3
Management style adopted by factors 1, 3, 4, and 6.

Factors	Variables	Agreement	Percentage	Dimension
1	Var. 9—Conclusions	No	34.88%	Interaction
1	Var. 10—Changes	Yes	58.14%	Reactive
1	Var. 12—Management approach	Yes	65.11%	Reactive
1	Var. 14—Project surprises	Yes	62.79%	Reactive
1	Var. 17—Internal guidelines	Yes	58.14%	Internal
1	Var. 27—Determination	Yes	75.97%	Determined
1	Var. 28—Project achievement	Yes	80.62%	Determined
1	Var. 29—Safe and convict	Yes	72.87%	Determined
3	Var. 4—Concerning	Yes	82.17%	Interaction
3	Var. 5—Relationship	Yes	91.47%	Interaction
3	Var. 13—Better way	Yes	94.57%	Proactive
4	Var. 15—View of project	Yes	96.12%	Reactive
4	Var. 16—Listen	Yes	89.14%	Reactive
6	Var. 11—Initiative	Yes	76.74%	Reactive
6	Var. 21—Responsibility	Yes	75.19%	External

about Internal × External dimension (variable 17: Internal factors); and three propositions about Flexible × Determined dimension (variables 27: Determination, 28: Project achievement, and 29: Safe and convict). By analyzing these variables, we identify a preference for a reactive and determined style of management. Table 3 showed the concordance in each variable researched.

When participants were asked about Conclusions (Variable 9), they reported that their focus was not only on the conclusions of activities. They keep good relationships with the team in order to achieve better results. Analyzing variables 10, 12, and 14, we found the same preference for a reactive dimension. According to the respondents, they postpone initiatives; they do not modify their type of management; and they always are surprised by changes in the project management. The answers from the question regarding internal guidelines (variable 17) shows that the respondents seek manage the project according to internal guidelines. By analyzing the variables 27, 28, and 29, we observed a preference for a determined dimension. In variable 27 (determination), more than half of the respondents do not have any doubt about actions to be taken, which could be classified as determined behavior. Similarly, regarding variable 28 (project achievement), they stated that they believed that their decisions were correct and, in the same way, in variable 29 (safe and convict), they affirm that they made the safe and correct decision.

Factor 3 considers propositions about Results × Interaction dimension (variables 4: Concerning and 5: Relationship) and Reactive × Proactive dimension (variable 13: Better way), as can be seen in Table 3. By analyzing these variables from Table 3, we identify a preference for the interaction behavior in variables 4 and 5, where they stated that they always are looking for good relations instead the circumstances of how the project is being managed. And they conclude that they are always looking for a better way to perform an activity of the project.

Factor 4 considers propositions about Reactive × Proactive dimension (variables 15: View of project and 16: Listen), as can be seen in Table 3. Table 3 shows that the respondents have a reactive way of work when they have to see the project in a clear and objective way (variable 15). And they have to do an organized communication process through reunions and meetings and only after that the project managers make their own decisions (variable 16).

Moreover, Factor 6 shows propositions about Reactive × Proactive dimension (variable 11: Initiative) and Internal × External dimension (variable 21: Responsibility). By analyzing these variables from Table 3, we conclude that the respondents have a reactive way of work when they affirm that they always take the initiative during the project execution (variable 11). And, according to the variable 21, they always analyze external factors to make decisions.

By analyzing the variables from Table 4, we observed that the management style could change according to the way of work in a project. Therefore, in this first analysis, we did not identify a particular management style. However, we observed that managers have a preference for being reactive and determined. In some statements, as in the variable 9, they are focused on maintaining a good relationship with the other members of the group (variables 4 and 5). So, we point out that the management style adopted by this sample is a combination of a conservative type of management where there is a prevalence of three determining aspects: Reactivity, Determination, and Interaction.

We concluded that there are particularities regarding how Brazilian project managers act in project management practices. As pointed out in the last paragraph, they adopted a combination of a conservative type of management. So, we can consider that they are more likely to react to others initiatives instead to take the initiative themselves; they have clear goals and do not like to adapt to new circumstances; and their actions are mainly aimed at achieving good relations rather than achieving results.

4.2. Adoption of management style according to gender and organizational sector

The second phase of results analysis was performed to explore each dimension of management style with two factors:

Table 4
T-test considering gender.

		Levene's test for equality of variances		-Test for equality of means		
		F	Sig.	t	df	Sig. (2 tailed)
Var 15	Equal variances assumed	7.734	**0.006**	−1.327	127	.187
	Equal variances not assumed			−2.180	93.000	**0.32**
Var 27	Equal variances assumed	30.308	**0.000**	−2.579	127	0.11
	Equal variances not assumed			−3.171	97.880	**0.02**

Table 5
Test of homogeneity of variances considering organizational sector.

	Levene statistic	df1	df2	Sig.
Var.10—Conclusions	10.554	1	127	0.01
Var. 12—Management approach	15.568	1	127	0.00
Var. 15—View of project	8.716	1	127	0.04
Var. 18—Possibilities	5.111	1	127	0.025
Var. 21—Responsibility	12.085	1	127	0.01
Var. 22—Collaboration	19.199	1	127	0.00
Var. 27—Determination	42.568	1	127	0.00
Var. 28—Project achievement	6.861	1	127	0.01

gender and organizational sector. We aim to find out if there is an adoption of or preference for a particular style of management, in order to answer the hypotheses of this work.

Investigations about some statements were verified to understand the respondent's individual views and relate these answers to the four dimensions of management styles. Ordinal statements with moderate correlation were related to nominal variables to perceive if there are any changes in groups of variables.

Regarding the style of management and the attitudes of project managers the statements were related to the gender variable in order to perceive if there are significant differences of opinions between genders through t-test analysis, as can be seen in Table 4.

Table 4 condensed the assumption regarding variances considering gender. Table 4 brings up significant differences between genders for two variables: variable 15—View of project and variable 27—Determination. For this reason, we can say that H1 was supported by these two variables and was not supported by the others variables.

However, when we analyze the variable 15 (View of project) separately in percentage number, we observe that both women (100.00%) and men (94.68%) agree that the project should be seen as a whole, so they can make decision for themselves. This agreement of answers reflects the collective sense of this sample in acting in a reactive management style because they have to know previously, by communication process, what really matters to the employees before making decisions. Regarding variable 27 that means determination, we perceived that both genders consider themselves confident enough to manage projects and take decisions, 94.28% of women and 69.14% of men. But, as can be seen, the women are more emphatic, answering more precisely than men when asked about this confidence. Perhaps because these women are more associated with the dimension determined, something unusual for the commonly known standards where men are more closed and women are more flexible. In accordance with Paton (2002, p. 540), 'the women felt that to succeed as change agent they must adopt more male oriented styles, for example, directive and aggressive styles'. Research on stereotypes has shown that characteristics such as competency and ambition are stereotypically more masculine than feminine (Sczesny et al., 2004). According to Lai (2011, p. 5), 'in order for women to match the expectations of a prototypical leader, they have to exhibit traditionally masculine behaviours such as assertiveness, ambition, and the ability to stand one's ground'. This may be one reason for this female behavior in an environment that is predominantly male. A study regarding the effect of project role, age and gender across seven countries, including Brazil, reveals that the gender factor did not any significant effect. 'The results suggest that women are significantly under-represented in the "project manager" role' (Ojiako, et al., 2013, p. 563). These early researchers give us support to raise our first hypotheses according to gender.

Therefore, considering these results, we refute H1, because we cannot conclude that the factors change according to gender. And we confirm again the preference for reactive and determined management style in this sample.

In order to perceive if there are significant differences of opinions between organizational sectors, we performed one-way ANOVA analysis and Kruskal–Wallis test. One-way ANOVA analysis investigates if there is significant difference in averages across groups of variables. Firstly, we checked the homogeneity of the data to consider the variables in one-way ANOVA analysis, as can be seen in Table 5.

Table 5 shows the p-values of all variables with values below 0.05, in other words, Table 5 reveals that the variances of these variables are unequal, for this reason, they cannot participate in one-way ANOVA analysis. Therefore, we performed Kruskal–Wallis test in order to know if these variables lead us to reject the hypothesis of equality of means. As can be seen in Table 6, the p-value regarding variable 27—Determination (0.005) leads us to reject the hypothesis of equality of means (the significance level 0.05).

Table 7 presents the one-way ANOVA analysis considering the organizational sector factor. We grouped the participants in three categories of organization sectors: 1 (Public sector; N = 38); (Private sector; N = 91) and (Both sectors; N = 0). The

Table 6
Summary of hypothesis test to organizational sector.

	Hypothesis	Test	Sig.	Decision
1	The distribution of Variable 10 (Conclusions) is the same between the categories from organizational sector	Kruskal–Wallis test	0.201	Accept
2	The distribution of Variable 12 (Management approach) is the same between the categories from organizational sector	Kruskal–Wallis test	0.60	Accept
3	The distribution of Variable 15 (View of project) is the same between the categories from organizational sector	Kruskal–Wallis test	0.142	Accept
4	The distribution of Variable 18 (Possibilities) is the same between the categories from organizational sector	Kruskal–Wallis test	0.423	Accept
5	The distribution of Variable 21 (Responsibility) is the same between the categories from organizational sector	Kruskal–Wallis test	0.108	Accept
6	The distribution of Variable 22 (Collaboration) is the same between the categories from organizational sector	Kruskal–Wallis test	0.54	Accept
7	The distribution of Variable 27 (Determination) is the same between the categories from organizational sector	Kruskal–Wallis test	0.005	Reject
8	The distribution of Variable 28 (Project achievement) is the same between the categories from organizational sector	Kruskal–Wallis test	0.230	Accept

Table 7
One-way ANOVA analysis considering organizational sector.

	Sum of squares	df	Mean square	F	Sig.	
VAR1	Between groups	.000	1	.000	.000	.996
	Within groups	41.039	127	.323		
	Total	41.039	128			
VAR2	Between groups	.703	1	.703	.911	.342
	Within groups	98.057	127	.772		
	Total	98.760	128			
VAR4	Between groups	.241	1	.241	.895	.346
	Within groups	34.239	127	.270		
	Total	34.481	128			
VAR5	Between groups	.029	1	.029	.197	.658
	Within groups	18.452	127	.145		
	Total	18.481	128			
VAR6	Between groups	.016	1	.016	.020	.887
	Within groups	98.356	127	.774		
	Total	98.372	128			
VAR9	Between groups	1677	1	1.677	2.440	.121
	Within groups	87.315	127	.688		
	Total	88.992	128			
VAR11	Between groups	.270	1	.270	.973	.326
	Within groups	35.234	127	.277		
	Total	35.504	128			
VAR13	Between groups	.005	1	.005	.047	.829
	Within groups	12.368	127	.097		
	Total	12.372	128			
VAR14	Between groups	.154	1	.154	.271	.603
	Within groups	72.001	127	.567		
	Total	72.155	128			
VAR16	Between groups	.018	1	.018	.098	.754
	Within groups	23.470	127	.185		
	Total	23.488	128			
VAR17	Between groups	.104	1	.104	.142	.707
	Within groups	92.563	127	.729		
	Total	92.667	128			
VAR20	Between groups	.292	1	.292	.587	.445
	Within groups	63,258	127	.498		
	Total	63,550	128			
VAR23	Between groups	.130	1	.130	.442	.507
	Within groups	37.420	127	.295		
	Total	37.550	128			
VAR24	Between groups	.001	1	.001	.010	.920
	Within groups	13.689	127	.108		
	Total	13.690	128			
VAR25	Between groups	.095	1	.095	.121	.729
	Within groups	100.106	127	.788		
	Total	100.202	128			
VAR26	Between groups	.030	1	.030	.165	.686
	Within groups	22.870	127	.180		
	Total	22.899	128			
VAR29	Between groups	.136	1	.136	.249	.619
	Within groups	69.260	127	.545		
	Total	69.395	128			

one-way ANOVA analysis in Table 7 shows that there is no statistical significant difference for most of the variables showed by factor analysis.

Therefore, considering the result from Table 7, we refute the hypothesis 2, because we cannot conclude that the management style change according to organizational sector. For this reason, as there is no statistical evidence of difference between the variables from organizational sector groups, we do not assume that H2 is valid.

5. Discussion of results

In the first part of the study, we applied a questionnaire to people related to project management. We noticed a congruence of opinions between them. We found that there is a preference for the project managers from this sample being reactive and determined through the importance that they gave to the factors related with the two dimensions Proactive × Reactive and Flexible × Determined.

Regarding the style of management Reactive × Proactive, in the project management area, it is important to seek new perspectives to do a better job. 'Proactive behavior is forthcoming in spite of what managers do' (Sinclair & Collins, 1992, p. 16). With respect to the style of management Flexible × Determined, we noted that the project managers from this sample are determined but be flexible is an important characteristic that leaders should maintain. 'To be effective, flexible practices need to be formally implemented, communicated, and managed within the organization' (Johnson, 2004, p. 733). The current market presents unexpected changes that managers must manage, and an adoption of a flexible style allows unpredictable factors to be controlled before they affect the project.

How these project managers conducted people and project lead us to thing that they have a conservative way of work. 'If the management style in the organization is more flexible and less rulebound, there will be more uncertainty in the work environment' (Thau et al., 2009, p. 81). And we perceived that with the financial crisis that Brazil have passed through, where 'a depreciation of its currency increased its indebtedness and acted as an amplifier to the effect of the financial crisis' (Cordella & Gupta, 2015, p. 254), maintain stability and wait for taking decision may be a reason for this type of attitudes from project managers.

The financial crisis that Brazil is passing, as stated by (Gabaix and Maggiori, 2015; World Bank, 2012), may influence the way project managers take their decisions. The conservative behavior of Brazilian project managers can be determined by the cautious situation in order to maintain job stability and business success. Therefore, this type of attitude allied to the current economic situation affects the project success; project managers want to minimize their loss in this time of financial instability.

Levels of international experience and relationships influence cultural characteristics from Brazilian management style. The cultural characteristics such as personalism and formalism reflect the Brazilian cultural traces. 'Power Distance, Future Orientation, and Performance Orientation increase with internationalization and more closely approximate the characteristics referenced as being on the Euro-American' (Balbinot et al., 2012).

We consider that the challenges in Brazil regarding studies on project management, management style and standardization remain important to the local literature and workplace (The Standish Group, 2013).

After initial observations of the answers from questionnaires and the results from factor analysis, both hypotheses could be evaluated. We could not support H1 and H2 because we found that the management style from the project managers not change according to gender or organizational sector.

Global studies regarding the differences between genders in project management practices show that women and men are oriented through education and work experiences into project management cultures formed by masculine characteristics. 'Women in male-dominated organizations are frequently found to behave in the way expected of all its male actors' (Cartwright and Andrew, 1995). According to (Duong & Skitmore, 2003, p. 10) 'there are a number of studies of women managers that suggest women should adopt male management styles for their survival in the macho environment'. In order to explore the management style in Pakistan, Qureshi et al. (2013) found that the choice of gender for being a project manager went slightly in favor of the male and regarding which makes a project manager a successful leader went totally in favor of male. Other scholars notice that male managers employ a democratic style more often than women, in other words, women have more autocratic decisions than men (Kocher et al., 2013).

The studies cited in the previous paragraph show that the project management environment is predominantly male and the women have to adequate their behavior in favor of this scenario. In comparison with Brazilian companies, this situation is not different, however, in general, both genders are respected, treated equally and have the same perceptions. One possibility is that female project managers started to incorporate more male characteristics hold on their status and responsibilities (Paton, 2002).

According to the analysis, project managers from different genders and types of organizations do not have distinct perceptions regarding the management style adopted; they have similarities of how they manage people and projects. There is no segregation of opinions and actions to be taken from them. In both organization sectors, it can be verified that norms, rules, and statements are important to internalize and to understand how the project should be carried out. 'Groups tend to conform to the norms determined by one or more strong individuals within a group' (Sinclair & Collins, 1992, p. 18). Public and private organizations and projects have some differences, but in both areas they should look for improvements and success in the search for new opportunities.

These Brazilian finding regarding the differences between organizational sectors are the same as the international requirements. According to PWC (2012, p. 11) 'all types of organizations are seeking to standardize and enhance processes and tools but their survey shows that more than half of the companies are not satisfied with their current maturity level'. According to Cartwright & Andrew (1995, p. 14) 'the practices and organization regarding project management in public companies have differences'. Globally, projects managed by public organizations are more complex than project managed by private organizations, but in these organizations their project management capability remains low (Weinstein and Jackques, 2010). These early researchers give us support to raise our second hypotheses according to organizational sector.

According to Bredillet et al. (2010), the project management area is undergoing significant growth worldwide and can be best perceived through two different aspects: advances in project management and project management establishment. Advances in project management are based on theoretical and practical knowledge and project management establishment is based on the involvement of human resources. Therefore, human factors are important to achieve success in the projects, but project management still is focused on maintaining internal control and less concerned to realize the interactions with the external environment (Klijn et al., 2008).

6. Conclusion

This study investigated the management style from Brazilian project managers regarding four dimensions of management based on the Klijn's management dimension (Klijn et al., 2008). We have found through factor analysis eight groups of behavioral factors, and then we tested four relevant factors regarding the four dimensions found.

We have answered the research question by analyzing with statistical rigor the deductions and perceptions from the different project managers, as well as from the different categories of gender and organizational sector.

As a result, this initial study does not fit a unique particular style, but a union of defined characteristics in each dimension. According to Kocher et al. (2013) normally, team managers have the flexibility to choose a particular style or adopt situational management, switching between different styles and circumstances. It can be observed that even though it is difficult to make this distinction with respect to the styles listed, the sample recommends reactive and determined management based on interaction and internal factors to manage projects. Management style is one of the ways to create a company's identity and the company's identity is part of the company's reputation, so the management style of their managers reflects on the company's reputation (Olmedo-Cifuentes and Martínez-Léon, 2014).

Studies on management style are relevant for project managers interested in developing management abilities, concerning team members' self-esteem, the company's reputation, as well as interaction between superiors and subordinates. Those factors must be observed and when possible adjusted in order to manage projects and team members more effectively. The adoption of a management style should consider several determining factors (as shown in Table 2) that can have an influence on managing a project. This may be a reason for a non-preference for a particular style in this studied sample. However, we identified the most commonly adopted style in both parts of the research.

This type of investigation is important not only for the Brazilian scenario where the project management area is limited and there is a gap between studies involving project management and management styles. This study can contribute to academia through our findings regarding the choice of management style in project management and our settlement about the non-attendance regarding our hypotheses. Our findings regarding genders and types of organizations are relevant and can be explored by others scholars as parameters to new studies involving others factors as age or professional experience; or others cultures, through comparisons between different countries.

Professionally, our results can produce insights for project managers interested in developing their management abilities. They can explore or implement their management style comparing their way of work to the results and methodologies applied in this article. And they can ensure if their management style will not be influenced by sexism or type of organization as our findings revealed.

In this study, two main limitations can be identified. Firstly, the study did not conduce the sample using probabilistic forms of data collection. However, we opted for a data-gathering strategy that collected opinions of qualified project managers through questionnaires. Thus, despite the non-random characteristics of the sample, statistical inferences could be made from this sample, along with insights revealing the most relevant styles of management in the project management area.

The second limitation is the use of statistical methodologies. As the sample was not probabilistic, we could not use more robust statistical methodologies but we use recognized statistical methods to manipulate the data appropriately. The data were managed as best as possible in order to make pertinent considerations and relevance for project management literature and we achieve our goal describing the behavior of the project managers regarding the studied factors.

As management style remains relevant for project manager's academics and professionals, we suggest for further studies to investigate the implication of other personal factors as age, education, experience, and size of organization.

Likewise, it is important to know that the management style can change according to the organizational structure in which the project is inserted. There are not a single model that can be implemented in all organizations and situations; it is necessary to consider the nature of each project and organizational structure. It is important to know in what phase the organization is in order to make decisions about the management style. We plan to study these factors in future researches.

Acknowledgments

This work is part of research funded by the Brazilian Research Council (Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq).

Appendix A. The questionnaire

Some questions will be raised in order to explore the management style of the respondents. Answer the questions according to the following scale: 1 = Strongly agree, 2 = Slightly agree, 3 = Neither agree nor disagree, 4 = Slightly disagree and 5 = Strongly disagree.

	1	2	3	4	5
1. When working with projects I always prioritized the results.					
2. I am extremely satisfied when I get the results in the project, regardless the circumstances.					
3. I dedicate myself to the conclusion of the activities.					
4. I always try to take my actions in order to make good relations.					

Appendix A. (*continued*)

	1	2	3	4	5
5. I am looking for a good relationship with the members of the team					
6. I follow the activities delegated by me					
7. I take into consideration the participation of members of the team.					
8. I am open to listen the staff concerns					
9. My focus is always on the conclusion of the activities					
10. I usually look forward the changes in the environment to take some initiative.					
11. I take the initiative during the project execution.					
12. I usually do not modify my management style					
13. I'm always looking for a better way to perform an activity					
14. I'm often surprised by the changes in project management environment					
15. I seek to see the project fully.					
16. I listen the work team information					
17. I seek internal guidelines					
18. I seek to manage the project with the customer' ideas.					
19. External factors can have influence in my way of managing projects.					
20. I always follow the internal rules of the company, even though I believe they are not suitable.					
21. I always try to analyze the external factors of the project to make any decision.					
22. I encourage the collaboration of team members.					
23. It is important to be flexible to manage projects.					
24. I analyze carefully the opinions of team members.					
25. I usually reconsider my point of view					
26. I try to develop practical and objective actions					
27. I believe the project will be completed despite the obstacles.					
28. I'm sure that the project will be completed and that my decision was the right one.					
29. I'm confident in managing projects and I have no doubt about my decisions.					

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