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Analytical study on the contribution of the adoption of the project management mode in the evolution of the level of governance of the Moroccan education system

Étude analytique sur la contribution de l'adoption du mode de management par projet dans l'évolution du niveau de la gouvernance du système éducatif Marocain

M'bark MEZENE[1,2]
mbark.mezene@um5s.net.ma
PhD student at FSJES – Souissi
Mohamed V University –Rabat.

Mohammed EL KAMLI[1]
m.elkamli@um5s.net.ma
Professor at FSJES - Souisi –
Mohamed V University -Rabat

Saad EL OURDIRHI[1]
s.elouardirhi@um5s.net.ma
Professor at FSJES - Souisi –
Mohamed V University - Rabat

[1] Laboratory of Economic Analysis and Modeling (LEAM), Faculty of Juridical, Economic and Social Sciences (FSJES) - Souissi - Mohamed V University - Rabat – Morocco.

[2] Ministry of National Education, Vocational Training, Higher Education and Scientific Research – Morocco.

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Summary:

Public decisions concern interdependent parties with shared interests. In this respect, governance appears to be the best possible response to the contradictions engendered by political, economic and social development.

Thus, Morocco seems to make this strategic choice, because it would be difficult or impossible to build a competitive economy without a desire to establish a climate of trust with the principles of good governance as a hobbyhorse. Consequently, the necessary educational reforms impose a better adequacy of the management of the system.

The aim of this article is to the realization an analytical study, with a sample of 138 officials at regional and provincial level, in order to evaluate the impact of the public decision of the Ministry of National Education, to adopt the project management mode to operationalize the strategic vision of the 2015-2030 educational reform, with a view to creating a climate of good governance.

Key words: project management - good governance - public decisions - Moroccan education system - principal component factor analysis (PCA).

Résumé :

Les décisions publiques concernant les parties interdépendantes qui ont des intérêts partagés. Tandis que, la gouvernance apparaît alors comme la meilleure réponse possible aux contradictions engendrées par le développement politique, économique et social.

Le Maroc semble ainsi faire ce choix stratégique, car il serait difficile sinon impossible de bâtir une économie compétitive sans une volonté d'instaurer un climat de confiance avec les principes de la bonne gouvernance comme cheval de bataille. Par conséquent, les réformes éducatives nécessaires imposent ainsi une meilleure adéquation du pilotage et de la gestion du système.

L'intérêt de cet article consiste à la réalisation d'une étude analytique avec un échantillon de 138 responsables aux niveaux régional et provincial, afin d'évaluer l'impact de la décision publique du Ministère de l'éducation national, d'adopter le mode de management par projet pour opérationnaliser la vision stratégique de la réforme éducative 2015-2030, en vue d'instaurer un climat de bonne gouvernance.

Mots clés : management par projet – bonne gouvernance – décisions publiques - système éducatif marocain- analyse factorielle en composantes principales (ACP).

INTRODUCTION

In the space of a few years, Morocco has embarked on important reforms that have brought profound changes in the economic and social political field, even going beyond the strictly speaking field of governance (Omap, 2006), the latter being interpreted as the how power is exercised in the management of a country's economic and social resources for development. The issue being that good governance must be seen as synonymous with sound development, going beyond the management of the public sector, to the principles of accountability (Diarra & Plane, 2011).

To this end, Morocco has launched in recent years, a number of mechanisms, such as the code of good governance practices for companies and public institutions (Amifi & Benlakouiri, 2019), it has also launched a number of sectoral strategic studies that include a range of public decisions aimed at promoting good governance in the public sector and at ensuring political stability and sustainable development (reviving economic growth, achievement of the Millennium Development Goals, etc.). However, despite the significant development efforts undertaken since independence in 1956 in the educational sector, Morocco is still among the lowest ranks (Wef, 2014)(Zerrouqi, 2015). Governance remains among the crosscutting issues that the school has been facing for decades, both at the management level and at the level of participation, transparency and the correlation between responsibility, evaluation and accountability (Csefrs, 2015).

For this reason, the Ministry of National Education (MEN) has adopted the project management mode for the activation and implementation of the Emergency Program between 2009 and 2012; this mode of management is part of the process of completing the modernization of its management system (Dssp, 2011). In the same context, the project approach was chosen and approved by the various levels of the Ministry to properly supervise, monitor and guide the implementation of the strategic vision of the 2015-2030 educational reform (Dssp, 2015).

The choice of this approach is based on a set of universal good practices, adapted to the context of national education, these practices are documented in a project management reference system (Dssp, 2015), which was developed following a participatory approach involving all the leaders of the education system, in order to adopt a new mode of governance to meet the challenge.

The organizational chart of the Ministry allows the distribution of administrative, pedagogical and financial tasks at central (central), regional (Regional Academies of Education and Training, AREFs), provincial (Provincial Directions) and local level (schools) (Men, 2004). Currently, there are 12 AREFs with one AREF per region of the Kingdom of Morocco.

It is in this context that our research will attempt to answer the following question:

"What is the level of contribution of the adoption of project management mode to the evolution of the level of good governance of the Moroccan education system?"

To do this, we will first begin our article by presenting the modalities of the field investigation, then we will present the results of the study, first according to an elementary analysis, and second, according to an in-depth analysis based essentially on a multidimensional analysis.

1. MATERIAL AND METHOD:

In order to test the degree of contribution of the adoption of the project management mode to the evolution of the level of governance of the Moroccan education system, we conducted an investigation through a questionnaire survey administered to officials at regional and provincial level (division and service heads).

1.1. Data collection method:

The method used was a self-administered survey based on e-mail. A questionnaire measuring the impact of the project management method in the establishment of a climate of good governance within the different levels of the education system has been developed. The design of this survey used the conceptual model developed by the Organization for European Cooperation and Development (OECD), which brings together six principles (Peerenboom, 2014). The questions were grouped into 6 axes inspired by the main theoretical elements of good governance according to the OECD, standardized on a worldwide scale. The 6 axes are broken down as follows (Moujahid, 2011):

First axis: Accountability (work by objective);
Second axis: Transparency;
Third axis: efficiency and effectiveness;
Fourth axis: receptivity (reactivity);
Fifth axis: Foresight (anticipation);
Sixth axis: The formality.

Each axis was declined in 3 to 6 closed questions according to the Likert scale using 6 information boxes: 0: "Insufficient"; 1: "Very little"; 2: "little"; 3: "moderately"; 4: "enough" and 5: "a lot". This scale of assessment aims at measuring the attitudes and / or the reactions, the respondent conducts a multiple-choice answer, which represents his attitude and / or his reaction (Demeuse, 2000).

1.2. Sampling method:

The sampling method adopted is based on stratified sampling (Clairi & Brion, 1997), using the proportional approach, according to Neyman's allocation, which estimates with the greatest precision possible, the average of a variable of interest on the whole studied population (Koubi & Mathern, 2009). The size of the sample was calculated according to the following formula (Le Maux, 2004): $n = \frac{t^2 p(1-p)}{e^2}$ where:

n = size of the expected sample;

t = Confidence level deduced from the confidence rate (traditionally 1.96 for a 95% confidence level) - reduced normal centered law;

p = estimated proportion of the population with the characteristic under study (This proportion is estimated for our case at p = 10%);

e = margin of error (set at 5%).

So, we find the size of the sample n from the formula above:

$$\boldsymbol{n = \frac{t^2 p(1-p)}{e^2} = \frac{1{,}96^2 X\ 0{,}10 X 0{,}90}{0{,}05^2} \approx 138.}$$

The sample size of each stratum in proportion to its weight in the total population was determined by the following formula (VAILLANT, 2005):

$$\frac{n_h}{N_h} = \frac{n}{N} \Rightarrow n_h = \frac{n}{N} N_h,$$ where h=1,2…,12.

Knowing that the size of the mother population N = 939, we deduced the sample size from each region N_h and n_h ; that is N_h is the number of actors in region h and n_h is the number of sample actors in region h (where h = 1, 2 ..., 12).

1.3. Data processing method:

In practice, ordinal qualitative variables are often considered as quantitative. In the case of our survey, the ordinal qualitative variables have the following characteristics: "No sufficient information; Very little; Little; Moderately; Enough and A lot ". Considering that these modalities correspond to a note given by the individual with 0 for "Not at all satisfied", 1 for

"Very little", 2 for "Little" ... and 5 for "Many", we thus obtain a discrete quantitative variable that can be used in Principal Component Analysis (PCA) (Lebart, et al., 1995)(Stafford & Bodson, 2005).

For data processing using the principal component factor analysis method, we chose to use SPSS software on Windows.

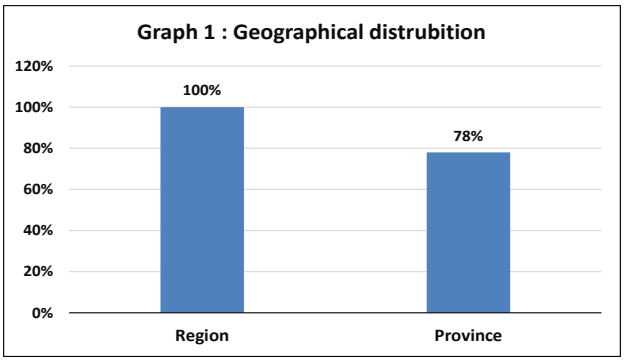
2. RESULTS AND DISCUSSIONS

2.1. Data analysis

The survey was filled in by a sample of n = 138 individuals who occupy key management positions in the education system at regional and provincial level.

2.1.1. The geographical dimension:

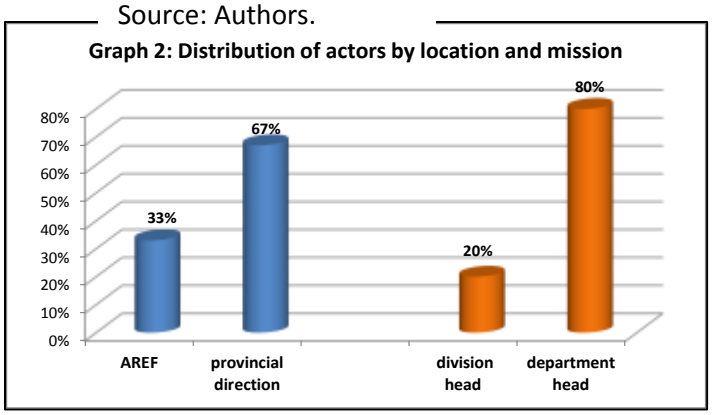
As shown in the Graph 1, the survey sample covered the 12 regions of Morocco and 78% of its provinces.



Source: Authors.

2.1.2. The actor dimension:

According to the Graph 2, 67% of the individuals in this sample are provincial actors and 33% are regional actors. This sample is made up of 80% of heads of service, who are actors of project implementation. On the other hand, division heads, who are coordinating and monitoring actors, represent 20% of the sample.



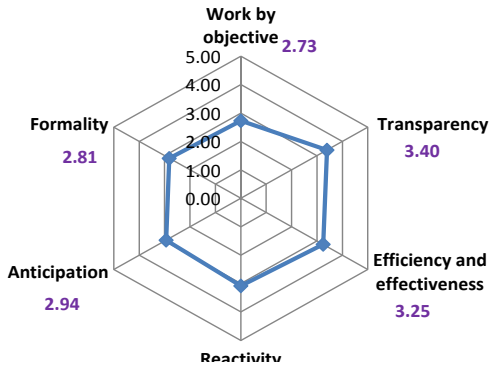
Source: Authors.

2.2. Elementary analysis

2.2.1. Results according to axes / principles

Looking at Graph 3, we find that all respondents spoke about the importance of efforts to anchor the culture of transparency. Respondents appreciated this principle by the maximum score of 3.40. The two principles of effectiveness, efficiency and reactivity are assessed respectively in the second degree by the score of 3.25 and in the third degree by the score of 3.08. The principle of anticipation and formality were noted in the fourth degree by the score of 2.94 and in fifth degree respectively by the score of 2.81. The principle of work by objectives for these system management actors was noted with a minimum score of 2.73.

Graph 3: Results according to the axes / principles

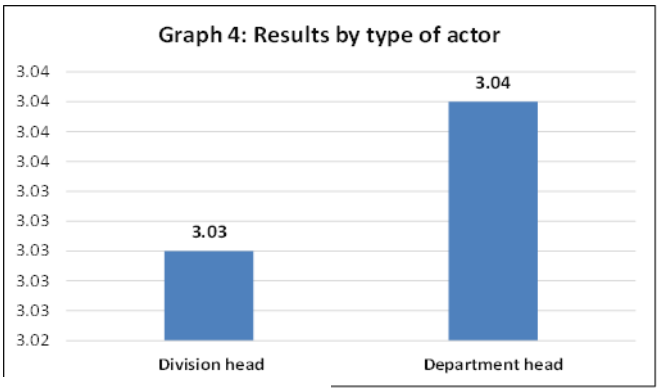


Source: Authors.

2.2.2. Results by type of actors

The Graph 4 shows that the overall level of governance of the education system was appreciated by a rating almost equal to the average by both types of leaders. First, we find that the overall assessment is given by the heads of services, with an average rating of 3.04; this type of stakeholder is responsible for the day-to-day management of the actions and operations programmed for the realization of the projects. These managers have a limited vision for the entire system, because it is limited to the scope of the projects for which they are responsible. The division heads, for their part, gave a mark of 3.03 on the overall level of governance of the system; this score is almost equal to the grade given by the heads of services. This type of stakeholder is, in turn, responsible for the coordination of several projects

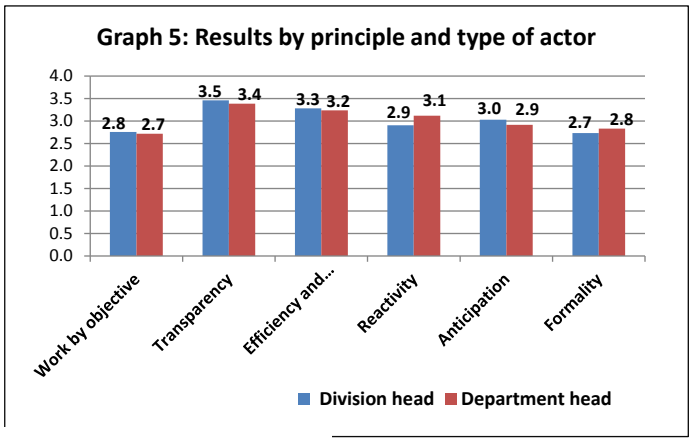
Graph 4: Results by type of actor



Source: Authors.

at regional level and therefore has a transversal vision on the functioning of the education system at regional level.

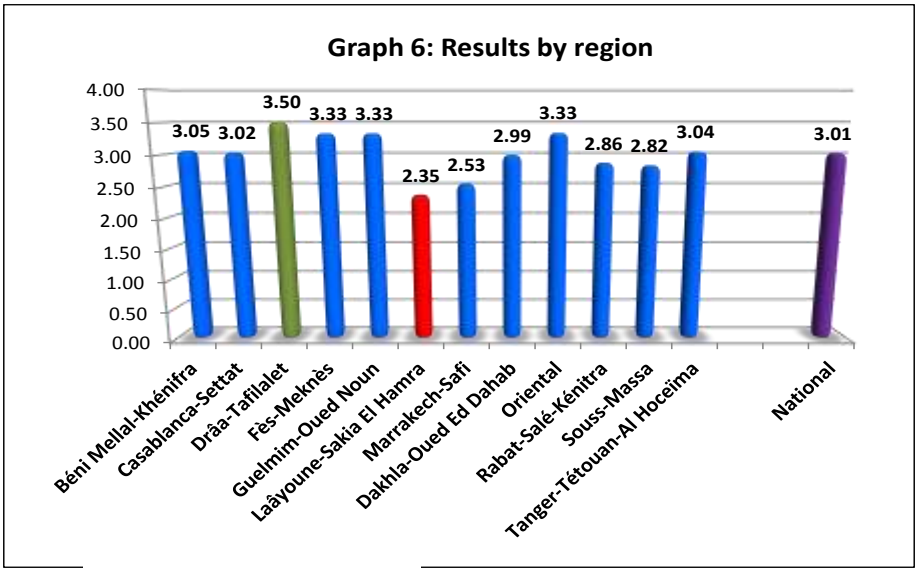
The Graph 5 shows that the two principles of transparency, efficiency and effectiveness were rated by both types of managers above average. The principle of responsiveness was appreciated by an above-average rating from the heads of departments. The principle of anticipation was appreciated by a score equal to the average of 3 from division heads. Meanwhile, the other principles were rated by an under-average rating by both types of leaders.



Source: Authors.

2.2.3. Results by region

Graph 6 shows that the region of Darâa-Tafilalet leaders appreciated the adoption of the project management mode on the evolution of the governance level of the education system by an overall maximum average score of 3.50. On the other hand, the decision to adopt the project management method to change the level of governance of the education system was appreciated by the leaders in the Laayoune-Sakia El Hamra region, with a minimum overall average score of 2 35. In addition, it should be noted that the actors of seven AREF generally appreciated the



Source: Authors.

evolution of the level of governance of the education system on average by a score higher than 3. On the other hand, only five AREF noted this evolution by an overall average score less than the average of 3. At the national level, the overall rating of the adoption of the project management method in the evolution of the level of governance of the education system in terms of application of six principles of good governance, is of the order of 3.03 (> to the average score of 3).

2.3. In-depth analysis

To extract knowledge from the raw data, we looked for relationships between the different variables measured. This is the object of data analysis (Goreaud & Lang, 2003). This analysis is based essentially on the results of principal component factor analysis (PCA), which has three main objectives (Stafford & Bodson, 2005):

i. to study the interrelationships between a large number of variables;
ii. from this study, group these variables into limited groups called factors or components;
iii. establish between these groups of variables a hierarchy based essentially on the explanatory value of each of them (it should be noted that the method also allows to establish a hierarchy of variables in each of the components).

2.3.1. Validity of the test

The Kaiser-Meyer-Olkin (KMO) test is a generalized measure of the partial correlation between study variables. According to Table 1, the KMO test is greater than 0.80, which shows that this test is reliable (between 0.80 and 0.90) (Durand, 2013); this test therefore has a very high validity. Bartlett's sphericity test, which makes it possible to judge the latent root inequality, is equivalent to 0, which means that a correlation does indeed exist between our different variables (Beswick et al., 2013).

Table 1: Test validity (KMO index and Bartlett test)

Precision measurement of Kaiser-Meyer-Olkin sampling.		.831
Bartlett sphericity test approximated	Chi-square	415.029
	ddl	15
	Meaning of Bartlett	.000

Source: Authors.

2.3.2. Extraction of factors

The information storage efficiency of a principal component is measured by the proportion of its eigenvalue to the sum of all eigenvalues (Glèlè Kakaï & Kokodé, 2004). As shown in Table 2, we retain only the first two factors (components), since the cumulative variance of the first two components is equal to 75.76% and allows us to evaluate whether the reduction of the 6 variables to 2 components allows to preserve most of the phenomenon measured by the 6 variables of departure, which indeed is the case.

Table 2: Factor Extraction Results (Total Variance Explained)

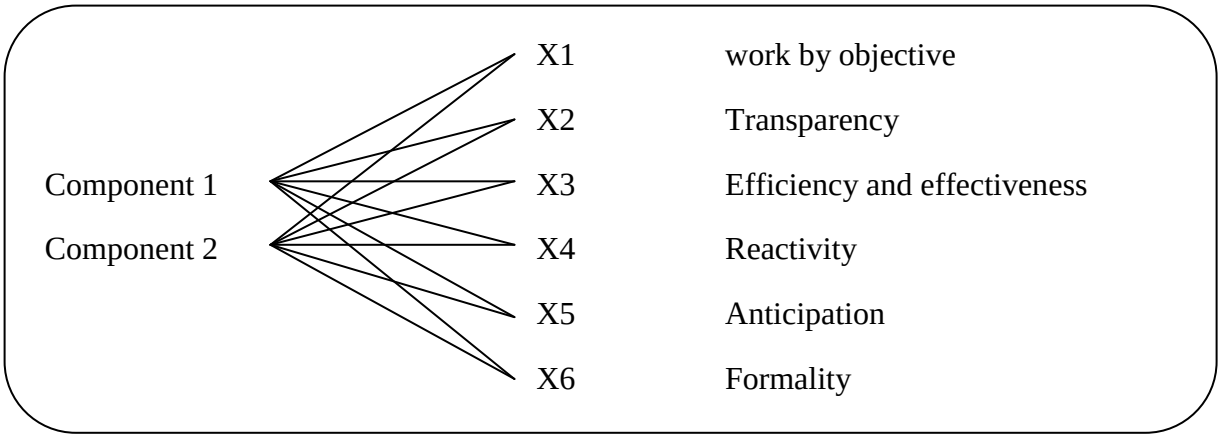
component	Initial eigen values			Extraction Sum of the factors selected			Sum of squares of factors selected for rotation		
	Total	% of variance	% cumulated	Total	% of variance	% cumulated	Total	% of variance	% cumulated
1	3.711	61.843	61.843	3.711	61.843	61.843	2.280	37.999	37.999
2	.835	13.920	75.763	.835	13.920	75.763	2.266	37.763	75.763
3	.487	8.121	83.884						
4	.443	7.388	91.272						
5	.354	5.897	97.169						
6	.170	2.831	100.000						

Extraction method: Principal component analysis.

Source: Authors.

We obtained the following relationships with respect to the two main components, as shown in graph 7:

Graph 7: Relationship between components and variables



Source: Authors.

2.3.3. The component diagram

As shown in Table 3, the columns corresponding to each extracted component contain saturation coefficients, which are interpreted as correlation coefficients:

- Component 1: having 4 variables "reactivity" (0.900), followed by "efficiency & effectiveness" (0.698), "transparency" (0.673), and "anticipation" (0.662).
- Component 2: having 2 variables "work by objective" (0.868) and "Formality" (0.850).

Table 3: Component Matrix

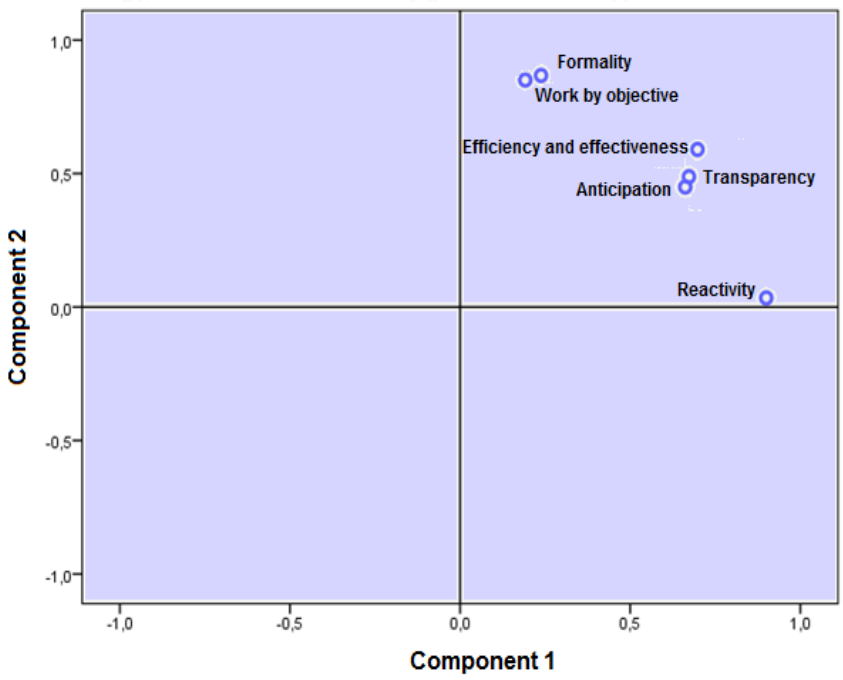
	component	
	1	2
Work by objective	.238	.868
Transparency	.673	.488
Efficiency and effectiveness	.698	.590
Reactivity	.900	.034
Anticipation	.662	.450
The formality	.191	.850

Extraction method: Principal component analysis.
Rotation method: varimax with Kaiser normalization.
Source: Authors.

In mapping 1, we clearly see that the principles of "reactivity", "efficiency & effectiveness", "transparency" and "anticipation" are extremely correlated with the horizontal axis. Similarly, the principles "Formality" and "work by objectives" are extremely correlated with the vertical axis.

The component diagram allows us to name the extracted dimensions by studying the saturation coefficients of each of the variables in relation to the dimensions. Thus, component 1 (vertical axis) can be called "strategic process" because it groups together the four principles ("transparency", "anticipation", "reactivity" and "efficiency & effectiveness") that have focused on impact on the ultimate results of the system. On the other hand, component 2 (horizontal axis) can be called "operational process", since this process groups together the following two principles ("formality" and "work by objectives") which focused on operational measures aimed at immediate impact on the system. Both processes contribute positively to the anchoring of a culture of good governance and create a new coalition of action based on shared responsibility. Nevertheless, focusing efforts on one process without taking into account the others creates an imbalance in the conditions for the establishment of good governance within the system.

Mapping 1: main component diagram



Source: Authors.

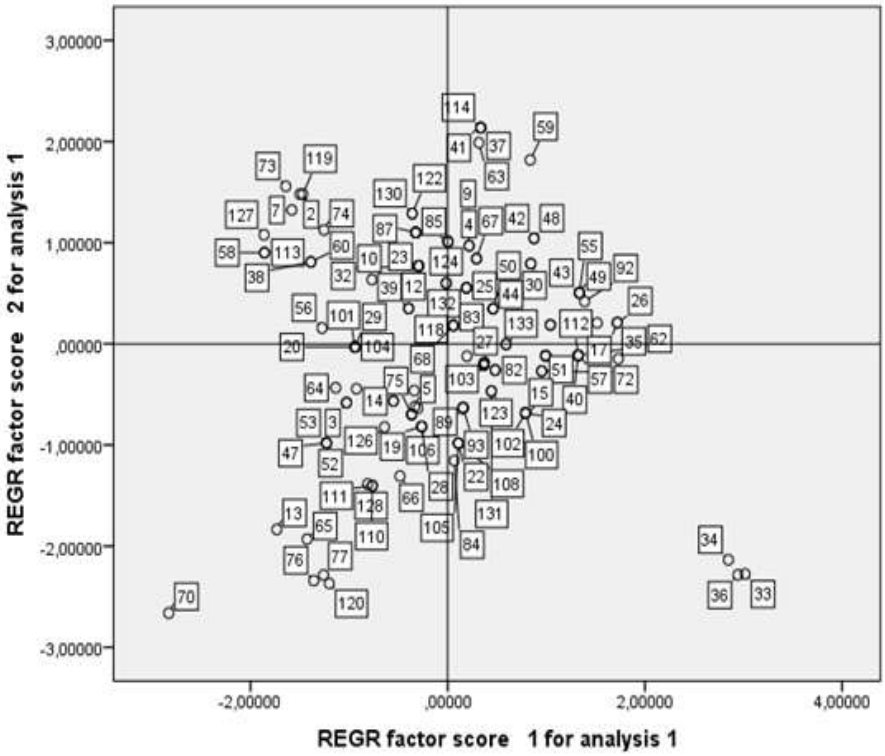
2.3.4. The diagram of individuals

Mapping number 2 shows that the points on the right at the top have a high score on axis 1, correspond to individuals expressing a high degree of agreement with the opinion that the most important evolution is the one that touches the operational process ("formality" and "work by objective") and a light degree of agreement for the strategic process ("transparency", "anticipation", "reactivity" and "effectiveness & efficiency").

Therefore, those on the top left who greatly appreciated the evolution of the operational process in relation to the strategic process. On the other hand, we find on the bottom right those who have greatly appreciated the evolution of the strategic process in relation to the operational process. And finally, one will find on the left down those who noted the evolution of the two processes by a weak note.

The points near the mapping center correspond to individuals expressing a moderate degree of agreement on the evolution of the two processes (Strategic and Operational). At the same time, and as shown by the factorial map, the majority of individuals noted the evolution of the two processes by an average score.

Mapping 2: diagram of individuals

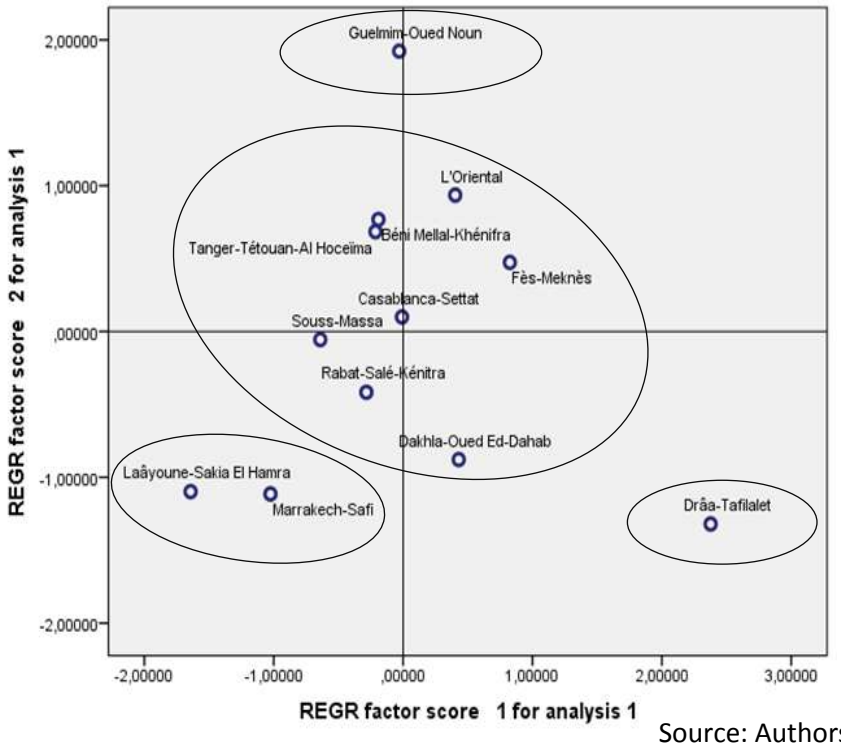


Source: Authors.

2.3.5. The strata diagram (regions)

By examining the mapping number 3, we find that the regions (AREFs) are grouped into 4 heterogeneous groups in relation to the evaluation of the contribution and the adoption of the project management mode to the evolution of the global level of the governance of the education system. A first group, constituted by AREF Guelmim-Oued-Noun, expresses a high degree of agreement with the opinion that the most important development would be that which mainly affects the operational process.

Mapping 3: strata diagram



Source: Authors.

Then, a second group composed by AREF of Drâa-Tafilalet expresses a high degree of agreement with the opinion that the most important evolution is that which would affect the strategic process more than the operational process. A third group composed by the two AREFs of Laayoune-Sakia El Hamra and Marrakech-Safi, expresses a high degree of agreement with the opinion that the two processes are evolved in a weak way. The AREF that stands out the most in this sense is that of Laayoune-Sakia El Hamra.

A fourth group, made up of the largest number (3/4) of AREFs (8/12 Academies), Souss-Massa AREFs, Beni-Mellal-Khénifra, Rabat-Salé-Kénitra, Casablanca-Settat, Tangier-Tetouan -Al Hoceima, Fes-Meknes, the Oriental and Dakhla-Oued Ed-Dahab, expresses a moderate degree of agreement with the evolution of the two processes at the same time. The AREF that stands out the most in this sense is Casablanca-Settat.

CONCLUSION

During this research, we tried to put into practice a set of statistical and computer techniques to evaluate and measure the impact of a public decision of the Ministry of National Education, in this case that concerning the adoption a project management method for implementing the strategic vision of the reform, with the aim of creating a climate of good governance within the different levels of the Moroccan education system.

This analytical study presents a modeling of the principles of good governance, adapted to the context of the Moroccan education system, by highlighting the relevant structures of large datasets collected from the actors in the field, and to study the interrelations between several variables (principles and regions) and to draw relevant conclusions by statistical inference.

This research, in its ultimate goal, aims to help decision makers to have a global vision on the functioning of the education system, and to guide sectoral development efforts, decentralized and controlled, in order to obtain the necessary synergies for the expansion of the entire school system.

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