



**QUALITY MANAGEMENT IN EDUCATION SECTOR PART IV:
OCCUPATIONAL IDENTITY, BELONGING AND STATISTICAL CLUSTERING
OF SECONDARY SCHOOL TEACHERS**

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Abstract

The teaching profession is operationalized in a context where organizational climate factors interact with the personality of teachers to produce behaviors welfare or criticality. The magnitudes of these interactions have become more marked due to the succession policy reforms.

The collection tool teachers' perception of organizational climate variables is the survey questionnaire which was built on nine organizational clauses that relate to the teacher's mission also its regional, national and universal context. Such clauses are initiated by a clause that deals precursor demographic characteristics of the study population statistics which this article is subject.

The study focuses on the identification and analysis of 4 dimensions that relate to the teachers' profile namely:

- Personal identification features;
- Professional features;

- Features of school councils membership;
- Features of administrative membership, trade unions membership and political affiliation.

Tracing profiles of teachers is a vital reference contextual framework insofar as it helps explain how teachers perceive the organizational climate variables treated in future articles.

In operating advanced statistical tools, our analysis target one hand each dimension in its entirety and the other detects the possible interactions between them, in order to expose possible interference.

Measuring instruments mobilized on a sample of N = 181 Moroccan secondary school teachers who belong to the AREF-LBS have delivered important information the results showed on the one hand the existence of significant correlations between variables 4 dimensions of the precursor clause, and secondly the existence of clusters that express the major academic, trade union and political trends within the population on the basis of 14 variables.

Keywords: Precursor clause, length of service, Trade union membership, Political affiliation, level of academic study, Trend, Correlation, Teachers' Cluster.

Abbreviations:

RAEF: Regional academy of education and training

LBS: Laâyoune, Boujdour, Sakia hamra

1. Introduction

Reform of our system of education and training fits into the historical process of development and progress of our nation. Such a challenge requires the contribution of all stakeholders and especially the teachers, centerpiece of this change and whose vital role is to help people to develop their talents and acquire the complex range of knowledge and skills. The failure of reforms is synonymous with forfeiture of all other sectors that determine development.

In Morocco it is undeniable that everyone agrees on the fact that our educational system suffers, the best evidence is the emergency plan implemented to save whatever can still be saved. The succession of political reforms since independence has never managed to get the engine on the right track.

In 1957 is the creation of the high Commission to education, followed in 1958 by the royal commission of educational reform. In 1959 it is the supreme education council, and then this is the symposium Maâmora in 1964. The Benhima project in

1967, the two conferences Ifrane In 1970 and 1980, the National committee of education in 1994, the royal Commission of education and training 1999, the special committee of education and training that has designed the national charter of education and training, and finally the emergency plan 2009-2012 . A huge mobilization of human and material resources has failed to boost the progress of the Moroccan education.

Many reforms have made their landing on the education sector. Pedagogy by objectives, which has long been the bible ministry, was abandoned without relevance assessment for the benefit of project pedagogy, and then the adoption of the competencies approach, before we hear a new discourse on the pedagogy of integration itself removed. Of expensive pedagogies that draw foreign values without taking into consideration the cultural and psychological contextual differences of teachers and students.

At the media level, a paradoxical scene emerges, firstly a discourse of educational policy makers who always seems confident and other empirical and alarming situation of the education system. Teachers subjects of our research operationalized within establishment seem far from being autonomous in terms of administrative and financial management, which raises the issue of decentralization, which is to grant educational institutions more autonomy in decision.

To hide the accumulated failures and lack of realistic strategies and efficient reforms, circles the highest hierarchy accuses teachers essentially of laxness, stagnation and lack of creativity which makes it vulnerable to the impact factors of organizational climate unstable and fluctuating. This vulnerability affects teachers' perceptions to induce behavior wellness or criticality that determine the quality of work life, then they are more likely to be unhealthy, poorly motivated, less productive and less respectful of educational guidelines and rules organization, and therefore our educational system is less efficient against the competition in terms of quality of service.

This research section discusses the characteristics of the teacher population targeted in the survey namely personal profile, professional profile and membership in civic organizations in an attempt to integrate smoothly and according to an integral vision impact organizational factor on teachers.

2. Materials and methods

This chapter presents the methodology of our statistical study in the order as follows:

- Study Design;
- Questionnaire survey;
- Target population, sampling method, and power analysis;
- Pilot Survey;
- Research questions and statistical analysis.

2.1. Study Design

The objective of the first part of the survey is mainly descriptive. Respecting the rules of cross studies, a survey based on an experimental protocol in paper form was distributed on the full-time teaching body to collect data on their perceptions of organizational climate variables. A test pilot survey was administered to assess the use of the survey questionnaire and to validate its clarity, readability and intelligibility.

The cross-sectional study involves measuring at one time the impact of organizational climate on teachers. His interest is essential insofar as the reproducibility of the study tracks the evolution of a phenomenon in time. Cross-sectional studies are a practical method for build a snapshot view of the phenomena of population and highlight the possible relationships between variables.

The design of the study aims to examine the relationships that exist among the variables of the precursor clause which symbolizes the characteristics of the population of teachers in terms of personal and professional identification as well as the administrative, associative, trade union and political membership rate.

2.2. Questionnaire design

At the end of the second article entitled "Quality Management in the Education Sector Part II: "Qualitative analysis of education and training macro-processes in Morocco and design of the survey questionnaire" [1], we developed a high-performance tool: the questionnaire whose engineering is inspired by:

- International Standards of Quality and Auditing as ISO 9000 family and BRC Global Standard for Food Safety; [2];
- Quality concepts as the method of 5M and bi-factorial matrix for risk assessment from the variables by combining the intensity and frequency of satisfaction.

Governed by these quality concepts and rummaging macro-process of education and

training, strategy risk analysis allowed us to identify 335 variables that form the sphere of perception of teachers and we have initiated organizational spread over nine clauses a precursor about this article clause. Saw that our mega-questionnaire consists of 15 pages; it was deemed best to treat statistically clause by clause, while respecting organizational priorities to highlight all dimensions of education system.

2.3. Target population, sampling method and analysis power

The target population consists of secondary teachers who work full-time in public schools of AREF-LBS, who agreed with willingness to participate in this study in their workplace or in their free time under favorable conditions.

The sample size is an important consideration for any research study, but indications in the literature on sample size vary widely.

In general, higher the sample size is large over the sampling error tends to zero and the better the quality of results. If we want to take a specific decision concerning a parameter p , we must take N large enough so that the sample is "reasonably low" error. If N is too small, it becomes unnecessary to collect data, as the results are so vague that they ultimately serve no purpose. Statistical representativeness is guaranteed by the law of large numbers and the law of convergence. When the sample size (n) increases, the values observed in the sample (such as mean, median, variance ...) tend to converge to the actual values of the population with a given risk. The risk of error decreases as the sample size increases and tends to zero in the case of a census where the entire population being investigated. In our research as the sample size is critical, the size of the parent population itself is important.

As our research is exploratory, a non-probability purposive sample is adopted to ensure coverage of secondary schools on the one hand and to provide reliable information on the other. The parent population is estimated at $N = 1139$ full-time teachers in all lower and upper secondary schools of the AREF LBS. These statistics are shown in Tables 1, 2 and 3:

Province	man	woman	Total
Lâayoune	417	79	496
Boujdour	89	14	103
Total	506	93	599

Source: Statistical Yearbook of Morocco 2010

Table 1: Teaching staff of lower secondary schools by gender and province in 2009-2010

Province	man	woman	Total
Lâayoune	371	89	460
Boujdour	65	15	80
Total	436	104	540

Source: Statistical Yearbook of Morocco 2010

Table 2: Teaching staff of upper secondary schools by gender and province in 2009-2010

Province	Lower secondary	Upper secondary	Total
Lâayoune	13	12	25
Boujdour	3	2	5
Total	16	14	30

Source: Statistical Yearbook of Morocco 2010

Table 3: Lower and upper public secondary schools by province in 2009-2010

The first part of the questionnaire we administered is titled Clause precursor aims to clarify and elucidate the characteristics of the teaching population, namely: personal characteristics, professional characteristics, school council's membership, associative membership, trade union membership, and political affiliation.

The procedure we followed for the dissemination of questionnaires is to seek initially support the alliance managers of the AREF secondary schools, support which aims to facilitate the reception and understanding of the general context of research.

And in a second time the questionnaires were administered in high schools, with a note explaining the context of the research and instructions to provide the answers, and a 3-week interval was collected 200 questionnaires including 181 were considered usable.

This high rate of questionnaires collected constitutes a representative sample that will allow us to describe the general characteristics of teachers. The results of Part 1 of the questionnaire will be processed by the statistical software IBM-SPSS Version 18.0 to determine possible relationships between 14 variables of this precursor clause.

2.4. Pilot survey

The purpose of the pilot survey was to test the feasibility of the study, disclose conflicts, detect redundancies, examine the affinity and clarity of the situations, validate small-scale methodologies, then adapt to the development of

the study on the whole population.

In this context the pilot survey questionnaires were administered to a sample of ten secondary school teachers distributed in the AREF LBS. The participants were a convenience sample because the criteria for their selection were strictly relational.

2.5. Research questions

Several questions were asked regarding the variables of this precursor clause, but it seems logical to limit this number in order to control the great amount of related information and avoid flooding in the infinite details.

The following research questions provide guidelines for the study:

- ❖ **Question 1:** Is there a relationship between political affiliation and gender?
- ❖ **Question 2:** Is there a relationship between the level of academic study and discipline taught?
- ❖ **Question 3:** Is there a relationship between the level of academic study and length of service?
- ❖ **Question 4:** Is there a relationship between trade union membership and the level of academic study?
- ❖ **Question 5:** Are there a relation between trade union membership and mode of recruitment?
- ❖ **Question 6:** What are the groups of teachers who share the same profiles that relate to gender and political affiliation?
- ❖ **Question 7:** What are the groups of teachers who share the same profiles that relate to gender and trade union membership?
- ❖ **Question 8:** What are the groups of teachers who share the same profiles that relate to academic study level and political affiliation?
- ❖ **Question 9:** What are the groups of teachers who share the same profiles that relate to academic study level and trade union membership?

3. Results and Discussion

3.1. Descriptive statistics: frequency analysis

3.1.1. Representability of teachers' population

Rate representation of the population of secondary school teachers of AREF-LBS is satisfactory as shown in the following figures 1 and 2:

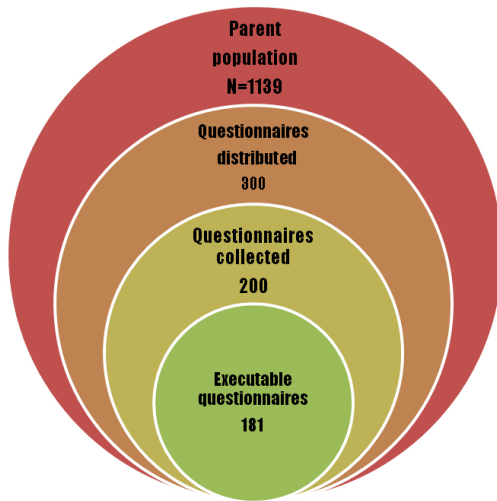


Figure 1: Size of target sample

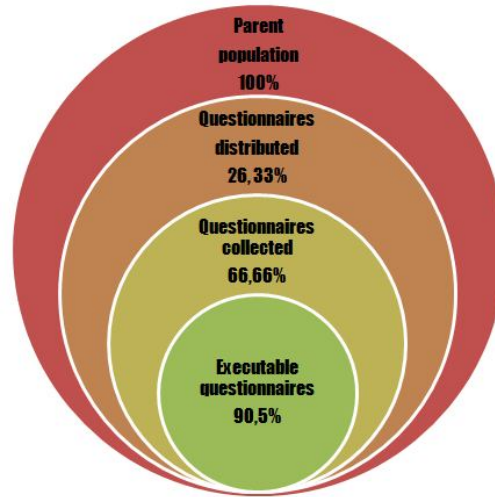


Figure 2: Rate representability

Our statistical population is defined in this precursor clause using 4 categories of characteristics:

- Personnel ;
- Professional career;
- Membership of school councils;
- Administrative membership; Associative membership; Trade union membership and Political affiliation.

3.1.2. Personal characteristics

This category is limited to three personal settings for teachers to know: the gender, age and marital status.

Variable	Characteristics	Frequency	Percentage	Valid percentage	Cumulative percentage
Gender	Man	138	76,2	76,2	76,2
	Woman	43	23,8	23,8	100,0
Age	20 to 29 years	30	16,6	16,6	16,6
	30 to 39 years	74	40,9	40,9	57,5
	40 to 49 years	51	28,2	28,2	85,6
	50 years and over	26	14,4	14,4	100,0
Marital status	Single	38	21,0	21,0	21,0
	Married	141	77,9	77,9	98,9
	Divorced	1	,6	,6	99,4
	Widowed	1	,6	,6	100,0

Table 4: Personal characteristics of the sample

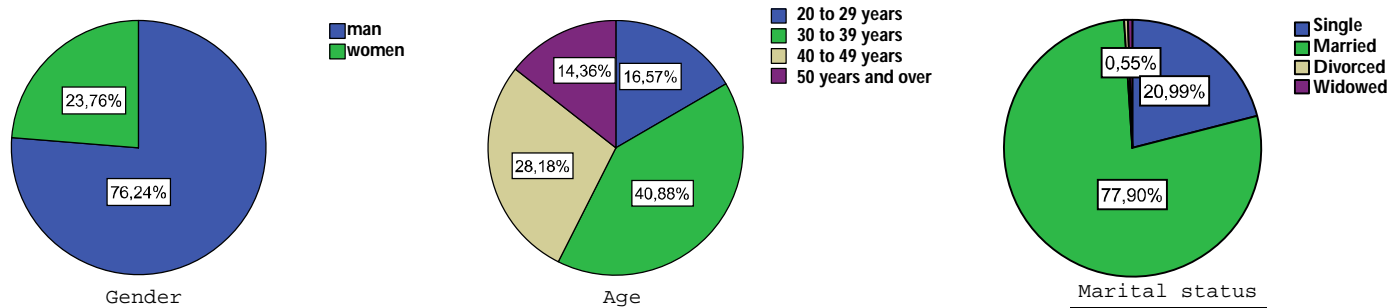


Figure 3: Teachers distribution graphs according to their gender, age and marital status

Comment :

It seems clear that men are represented in the population of teachers by 76.24% against 23.76 for women, which is logical given the representation of women revolves around this value at the regional level.

We also note that 69.06% of teachers' age modalities are between 30 and 49 years and 77.9% of the population statistics are married.

The age range that extends from 30 to 49 years reflects the maturity of teaching staff and the dominance of married marital status reflects social stability. These factors are a good indicator of the surveyed human platform.

3.1.3. Professional career

In this category are defined occupational characteristics on the teaching mission namely the recruitment mode, level of academic study, the length of service as a teacher full time and discipline taught.

Variable	Characteristics	Frequency	Percentage	Valid percentage	cumulative percentage
Recruitment mode	CPR	33	18,2	18,2	18,2
	ENS	86	47,5	47,5	65,7
	AGR	00	00	00	65,7
	Direct insertion	62	34,3	34,3	100,0
Level of academic study	DEUG	10	5,5	5,5	5,5
	Licence	111	61,3	61,3	66,9
	DESS/DESA/Master	53	29,3	29,3	96,1
	Doctorat	7	3,9	3,9	100,0
Length of service	1 to 2 years	8	4,4	4,4	4,4
	3 to 5 years	32	17,7	17,7	22,1
	6 to 9 years	38	21,0	21,0	43,1
	10 to 15 years	51	28,2	28,2	71,3
	Over 15 years	52	28,7	28,7	100,0
Discipline taught	Arabic : AR	20	11,0	11,0	11,0
	French : FR	20	11,0	11,0	22,1
	English : EN	10	5,5	5,5	27,6
	Spanish : ES	2	1,1	1,1	28,7

Variable	Characteristics	Frequency	Percentage	Valid percentage	cumulative percentage
	History and Geography: HG	21	11,6	11,6	40,3
	Islamic Education: IE	10	5,5	5,5	45,9
	Physical Education: PE	7	3,9	3,9	49,7
	Mathematics : Math	18	9,9	9,9	59,7
	Life and Earth Sciences : LES	33	18,2	18,2	77,9
	Physics and Chemistry : PC	27	14,9	14,9	92,8
	Computing : CM	4	2,2	2,2	95,0
	Philosophy : PHI	4	2,2	2,2	97,2
	Translation : TR	2	1,1	1,1	98,3
	Technology, Arts and Family: TAF	3	1,7	1,7	100,0

Table 5: Professional career of sample

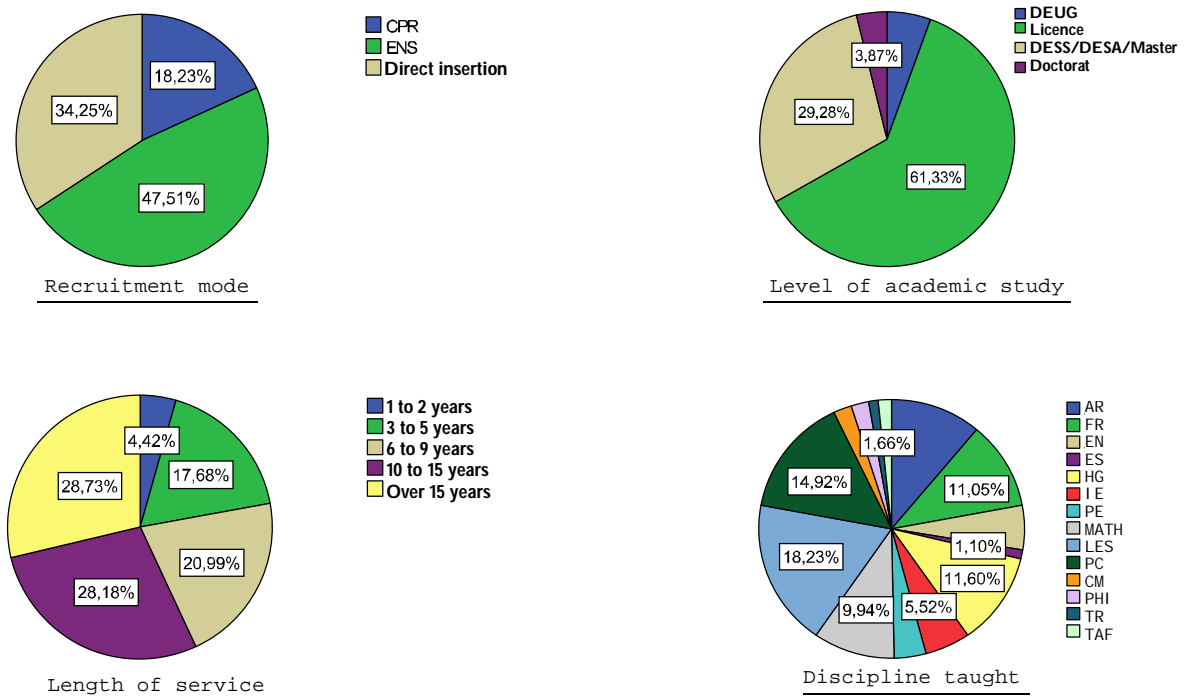


Figure 4: Teachers distribution graphs according to their recruitment mode, level of academic study, length of service and discipline taught

Comment :

The category of teachers who have accumulated more than 6 years of professional practice are 77.9% of the sample on the one hand, and on the other hand we can see that 33.15% of teachers are PhD students whose recruitment mode is divided between CPR, ENS and direct insertion. These criteria probed strengthen our human platform for three reasons:

- The first is that they will allow us to draw as much information on the perception of phenomena that accompany the teaching mission;
- The second: that this category of teachers have experienced successive

reforms of education policies including the National Charter for Education and Training and the emergency plan;

- The third: that the intellectual level of teachers can collect realistic feedback and deep with respect to variables of organizational climate.

In this statistical sample all disciplines are represented in particular scientific disciplines whose cumulative percentage recovery of questionnaires was 43%; this high percentage indicates that teachers of these subjects have reacted positively towards the investigation.

3.1.4. Membership of school councils

In administrative and teaching legislation, the school councils are created to contribute to the establishment of good governance in the school, also for the animation of school life, and in this section we deal with characteristics relating to the membership of teachers in these bodies.

Variable	Characteristics	Frequency	Percentage	Valid percentage	cumulative percentage
Management council	Yes	78	43,1	43,1	43,1
	No	103	56,9	56,9	100,0
Pedagogical council	Yes	47	26,0	26,0	26,0
	No	134	74,0	74,0	100,0

Table 6: Membership of school councils

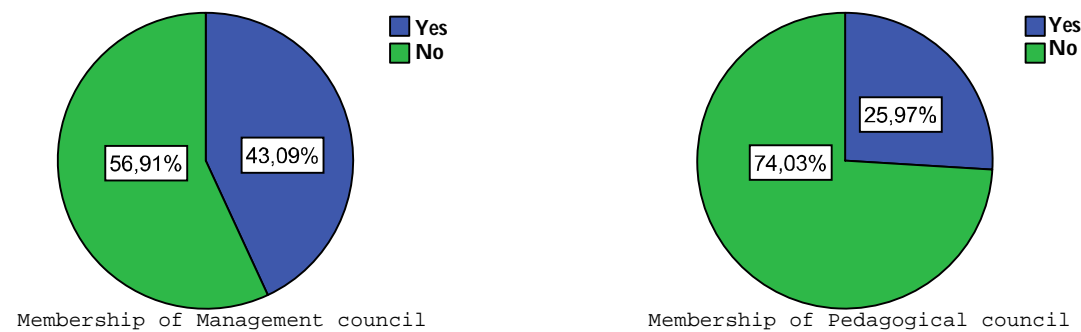


Figure 5: Teachers distribution graphs according to their membership of school councils

Comment:

43.09% of teachers are members in Management councils, this representability is significant insofar as these councils are governed by the internal electoral process, and each teacher has the same chance of being elected, while the representability of teachers within Pedagogical councils is limited to 26% seen that this body requires addition to coverage of all disciplines, approval of

regional education authorities and training.

Class councils and Educational councils are not listed in the questionnaire because the representation of teachers in these two bodies occurs automatically. At the organizational level, the representability of teachers within 4 school councils is witnessing a good involvement in self management, but these findings need to be confirmed at the operational level during the analysis of teachers' perceptions regarding the effectiveness and efficiency of these councils.

3.1.5. Organizational membership

Teachers have a dual interface, the first anime school and the second anime civil society, and in this section we spotlight the teacher's membership to administrative, associative, trade unions and political bodies.

Variable	Characteristics	Frequency	Percentage	Valid percentage	cumulative percentage
Membership of Regional Council of the Academy: RCA	Yes	1	,6	,6	,6
	No	180	99,4	99,4	100,0
Membership of parents' association	Yes	10	5,5	5,5	5,5
	No	171	94,5	94,5	100,0
Civil associations	Yes	112	61,9	61,9	61,9
	No	69	38,1	38,1	100,0
Membership of trade unions	Yes	76	42,0	42,0	42,0
	No	105	58,0	58,0	100,0
Political affiliation	Yes	82	45,3	45,3	45,3
	No	99	54,7	54,7	100,0

Table 7: Membership of administrative, associative, trade union and political bodies

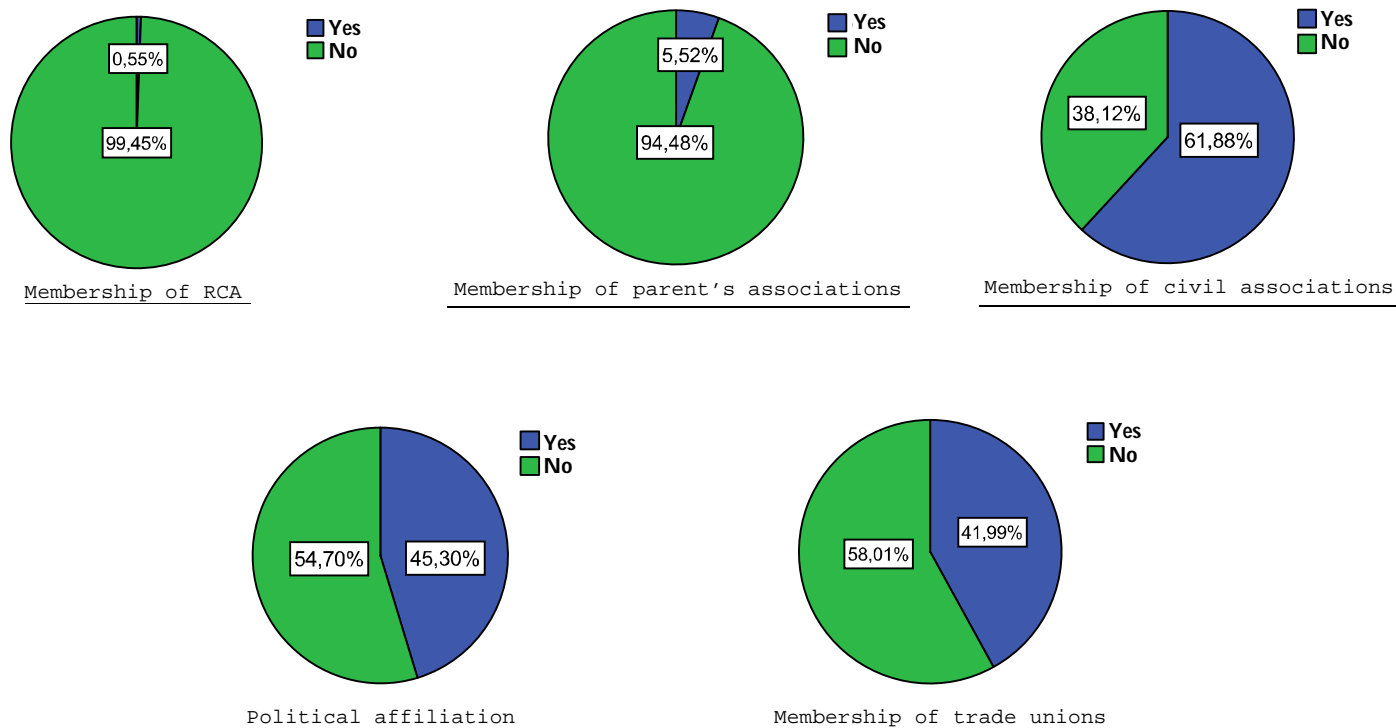


Figure 6: Teachers distribution graphs according to their membership of administrative, associative, trade union and political bodies

Comment:

Representation of teachers in the RCA is very low saw that this body has a regional nature and the number of places reserved for faculty is limited and follows a special electoral process.

With a rate of membership to civil associations of 61.88% and 45.30% to the political bodies, and 41.9% to trade unions, we can see that much of teachers in the sample surveyed is at the heart of social debate and adopt associative, trade union, or political positions.

In a context where political discourse replicate and ideologies raging, this information inspire us to ask:

- Is it true that these intellectuals tend to be more protesters and more dissatisfied than other professional groups?
- Is there a relationship between political, trade union and associative trends on the one hand, and the quality of perception of various factors of organizational climate on the other?

Gateway political and trade union membership and the management of the education system is an interface cleavage that generates resistance to change strategies in the workplace, despite the vital aspect of this link it remains absent in

analyzes and reports on the state of the education system.

When the theory of strategic choice takes into account the trade union strategies It is in the light of these contribution to the success of organizational change (Kochan & Osterman, 1994) [3].

The opposition and abstention are then considered very harmful, while participation is greatly favorable. It gives more legitimacy to innovations, it provides continuous adjustment work rules and allows trading counterparties, often beneficial for employees and makes them more likely to accept concessions and effort required (Appelbaum & Batt, 1994) [4].

3.2. Descriptive statistics: the search for correlations

- ❖ **Question 1:** We assume that the political affiliation of teachers depends on the age, is this true?

Crosstabulation

Do you have a political affiliation? * What is your age?

		What is your age?				Total
		20 to 29 years	30 to 39 years	40 to 49 years	50 years and over	
Do you have a political affiliation?	Yes	Count 9	Count 30	Count 31	Count 12	Count 82
		% within 30,0%	% within 40,5%	% within 60,8%	% within 46,2%	% within 45,3%
	No	Count 21	Count 44	Count 20	Count 14	Count 99
		% within 70,0%	% within 59,5%	% within 39,2%	% within 53,8%	% within 54,7%
Total		Count 30	Count 74	Count 51	Count 26	Count 181
		% within 100,0%	% within 100,0%	% within 100,0%	% within 100,0%	% within 100,0%

Table 8: Crosstabulation of teachers' political affiliation and their age

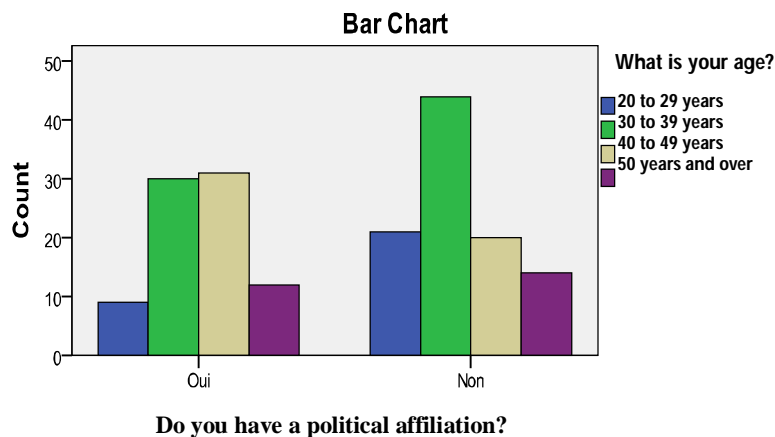


Figure 7: Chart of teachers' political affiliation according to their age

Comment :

60.8% of teachers who have political affiliations are concentrated in age between 40 and 49 years intervals, while 70% of teachers with no affiliation

derived from age ranges between 20 and 29 years. So to decide clearly whether political affiliation depends on the age, a chi-square test is required to see if there really is a significant relationship between the two variables.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8,453^a	3	,038
Likelihood Ratio	8,548	3	,036
Linear-by-Linear Association	4,312	1	,038
N of Valid Cases	181		

a. 0 cells (, 0%) have expected count less than 5. The minimum expected count is 11, 78.
Contingency Coefficient: **0,211**

Table 9: Chi-square test of political affiliation and age

Comment:

- The result or the value of chi-square is: 8,453;
- The df or degree of freedom of the test is: 3;
- The exact meaning (bilateral) or p-value = probability of committing the alpha error is 0.038;
- The contingency coefficient is: 0.211.

The margin of error is 0.038; this value is less than 0.05, so there is a partial relationship between age and political affiliation, with a force of 21.1%. Indeed, the age group that adopts political views ranges from 40 to 49 years; this behavior can be explained by the impact of the cumulative effect of permanent organizational perceptions for many years of professional practice. This impact in its positive side is reflected in the adoption of political opinions in an attempt to contribute to social change.

❖ **Question 2:** We assume that the level of academic study of teachers depends on the subjects taught, is this true?

Crosstabulation

What is your level of academic study? * What discipline do you teach?

			What discipline do you teach?													Total	
			AR	FR	EN	ES	HG	IE	PE	MATH	LES	PC	INF	PHI	TR		TAF
What is your level of academic study?	DEUG	Count	0	1	0	0	0	0	1	0	4	2	0	0	0	2	10
		Expected Count % within What is your level of academic study?	,0%	5,0%	,0%	,0%	,0%	,0%	14,3%	0,0%	12,1%	7,4%	,0%	,0%	,0%	66,7%	5,5%
	Licence	Count	9	14	7	1	12	4	6	15	23	14	0	3	2	1	106
Expected Count % within What is your level of academic study?		45,0%	70,0%	70,0%	50,0%	57,1%	40,0%	85,7%	83,3%	69,7%	51,9%	,0%	75,0%	100,0%	33,3%	61,3%	
DESS/ DESA/ Master	Count	7	5	3	1	8	5	0	3	6	10	4	1	0	0	53	
	Expected Count % within What is your level of academic study?	35,0%	25,0%	30,0%	50,0%	38,1%	50,0%	,0%	16,7%	18,2%	37,0%	100,0%	25,0%	,0%	,0%	29,3%	
Doctorat	Count	4	0	0	0	1	1	0	0	0	1	0	0	0	0	7	

	Expected Count % within What is your level of academic study?	20,0%	,0%	,0%	,0%	4,8%	10,0%	,0%	,0%	,0%	3,7%	,0%	,0%	,0%	,0%	3,9%
Total	Count	20	20	10	2	21	10	7	18	33	27	4	4	2	3	181
	Expected Count % within What is your level of academic study?	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 10: Crosstabulation of level academic study and the taught discipline

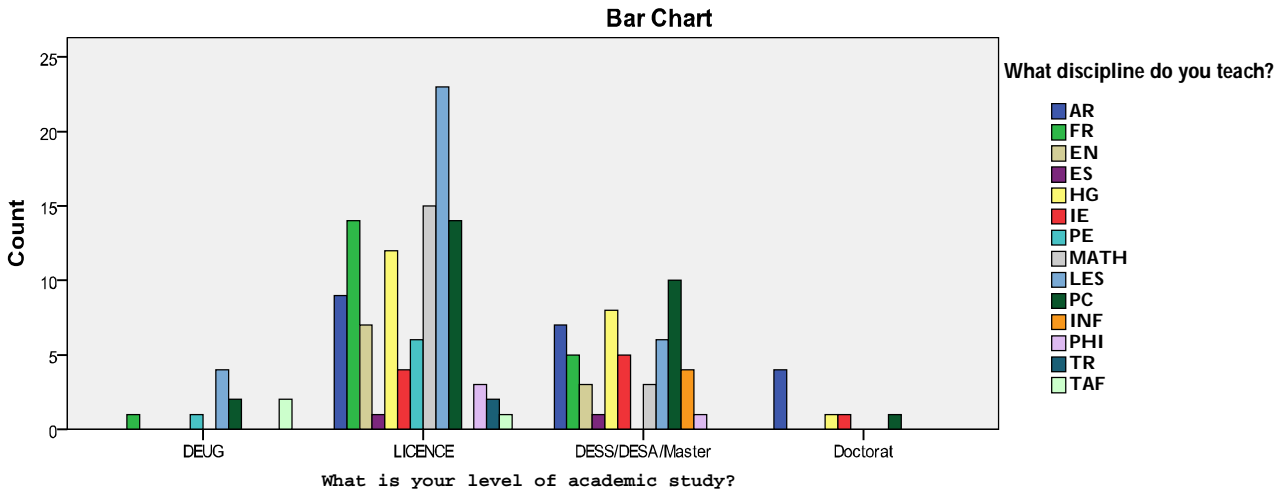


Figure 8: Chart of teachers' level academic study and the taught discipline

Comment :

- 66.7% of teachers of technology, art and family education "TAF" have a degree of DEUG;
- 69.7% of teachers in Life Science and Earth "SVT" have a university degree;
- 37% of teachers of physical science and chemistry "PC" have a postgraduate degree: DESS, DESA or Master;
- 20% of teachers of Arabic are a PhD;
- The teachers with a bachelors degree constitute 61.3% of the sample, and mainly teach science subjects as LES, Math, and PC as well as the French language.

So to check if the level of academic study depends on the discipline, a chi-square test is required to see if there really is a significant relationship between the two variables.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	71,900^a	39	,001
Likelihood Ratio	62,107	39	,011
Linear-by-Linear Association	7,351	1	,007
N of Valid Cases	181		

a. 42 cells (75, 0%) have expected count less than 5. The minimum expected count is 0,08.
Contingency Coefficient: **0,533**

Table 11: Chi-square test of level academic study and the taught discipline

Comment:

- The result or the value of chi-square is: 71,900;
- The df or degree of freedom of the test is: 39;
- The exact meaning (bilateral) or p-value = probability of committing the alpha error is 0.001;
- The contingency coefficient is: 0.533.

The margin of error is 0,001 and this value is less than 0,05 , so there is a significant correlation between the level of academic study and taught discipline whose power is 53,3%.

❖ **Question 3:** We assume that the level of academic study of teachers depends on the length of service, is that true?

Crosstabulation

What is your level of academic study? * How many years you are in service?

			How many years you are in service?					Total
			1 to 2 years	3 to 5 years	6 to 9 years	10 to 15 years	Over 15 years	
What is your level of academic study?	DEUG	Count	1	2	3	1	3	10
		Expected Count % within How many years you are in service?	12,5%	6,3%	7,9%	2,0%	5,8%	5,5%
	Licence	Count	5	17	8	37	44	111
		Expected Count % within How many years you are in service?	62,5%	53,1%	21,1%	72,5%	84,6%	61,3%
	DESS/ DESA/ Master	Count	2	13	22	11	5	53
		Expected Count % within How many years you are in service?	25,0%	40,6%	57,9%	21,6%	9,6%	29,3%
	Doctorat	Count	0	0	5	2	0	7
		Expected Count % within How many years you are in service?	,0%	,0%	13,2%	3,9%	,0%	3,9%
Total		Count	8	32	38	51	52	181
		Expected Count % How many years you are in service?	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 12: Crosstabulation of level academic study and length of service

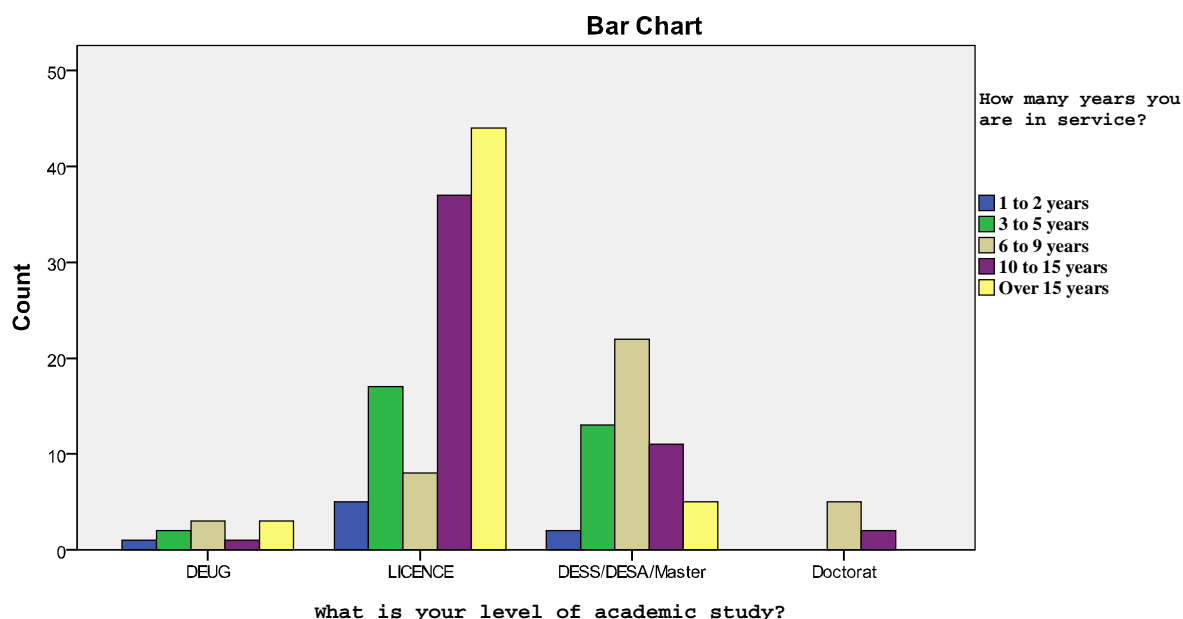


Figure 9: Chart of teachers' level academic study and the length of service

Comment:

- 12.5% of teachers at the beginning of their career hold a diploma or undergraduate university DEUG cycle;
- 84.6% of teachers whose professional career more than 15 years have a bachelors degree;
- 57.9% of teachers whose service period ranges from 6 to 9 years are holding a postgraduate diploma: DESS, DESA or Master;
- 13.2% of teachers whose service period ranges from 6 to 9 years are holding a PhD.

This breakdown seems logical insofar as teachers who have accumulated periods of service included between 6 and 9 years are PhD students. This time interval was marked by a massive movement of recruitment to higher graduates unemployed since 2007, and before that date the main procedure of recruitment was through normal colleges ENS or regional pedagogical centers CPR whose mode admission requires a bachelors degree or a university undergraduate degree.

So to check if the level of academic study depends on the length of service, a chi-square test is required to see if there really is a significant relationship between the two variables.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50,374^a	12	,000
Likelihood Ratio	53,734	12	,000
Linear-by-Linear Association	7,812	1	,005
N of Valid Cases	181		

a. 12 cells (60, 0%) have expected count less than 5. The minimum expected count is 0,31.
Contingency Coefficient: **0,467**

Table 13: Chi-square test of level academic study and the length of service

Comment:

- The result or the value of chi-square is: 50,374;
- The df or degree of freedom of the test is: 12;
- The exact meaning (bilateral) or p-value = probability of committing the alpha error is 0,000;
- The contingency coefficient is: 0,467.

The margin of error is 0,000 and this value is less than 0,05 , so there is a significant correlation between the level of academic study and length service whose power is 46,7%.

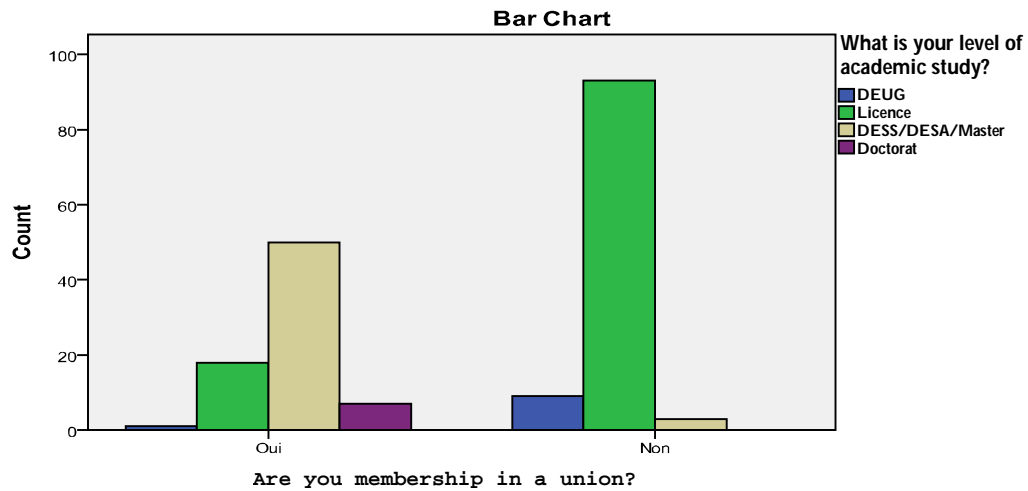
❖ **Question 4:** We assume that the union membership of teachers depends on the level of academic study, is that true?

Crosstabulation

Are you membership in a union? * What is your level of academic study?

			What is your level of academic study?				Total
			DEUG	Licence	DESS/DESA/ Master	Doctorat	
Are you membership in a union?	Yes	Count	1	18	50	7	76
		Expected Count % within What is your level of academic study?	10,0%	16,2%	94,3%	100,0%	42,0%
	No	Count	9	93	3	0	105
		Expected Count % within What is your level of academic study?	90,0%	83,8%	5,7%	,0%	58,0%
Total	Count	10	111	53	7	181	
	Expected Count % within What is your level of academic study?	100,0%	100,0%	100,0%	100,0%	100,0%	

Table 14: Crosstabulation of level academic study and union membership



Comment :

The unionized teachers are holders of a PhD with 100%, followed by holders of a diploma graduate with 94.3%, while teachers who have no union membership are holders of a university degree undergraduate or DEUG with 90%, followed by the holder of a bachelor degree with 83.8%.

This behavior of unionism pronounced among doctoral students is explained by the fact that these teachers were activists for direct integration into the public service during the pre-insertion, and have experienced difficult social situations which imposed the trade union membership.

So to check if unionism depends on the academic study level, a chi-square test is required to see if there really is a significant relationship between the two variables.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	103,772^a	3	,000
Likelihood Ratio	118,295	3	,000
Linear-by-Linear Association	85,297	1	,000
N of Valid Cases	181		

a. 3 cells (37, 50%) have expected count less than 5. The minimum expected count is 2,94.
Contingency coefficient: **0,604**

Table 15: Chi-square test of level academic study and trade union membership

Comment :

- The result or the value of chi-square is: **103,772;**
- The df or degree of freedom of the test is: **3;**
- The exact meaning (bilateral) or p-value = probability of committing the alpha error is **0,000;**

▪ The contingency coefficient is: **0,604**.

The margin of error is 0,000 and this value is less than 0,05 , so there is a significant correlation between the level of academic study and union membership whose power is 60,4%.

❖ **Question 5:** We assume that the union membership of teachers depends on their mode of recruitment, is this true?

Crosstabulation

Do you have a union membership? * What is your mode of recruitment?

		What is your mode of recruitment?			Total
		CPR	ENS	Direct insertion	
Do you have a union membership?	Yes	Count 7	Count 20	Count 49	76 42,0%
		Expected Count % within What is your mode of recruitment?	21,2%	23,3%	
	No	Count 26	Count 66	Count 13	105 58,0%
		Expected Count % within What is your mode of recruitment?	78,8%	76,7%	
Total		Count 33	Count 86	Count 62	181 100,0%
		Expected Count % within What is your mode of recruitment?	100,0%	100,0%	100,0%

Table 16: Crosstabulation of union membership and recruitment mode

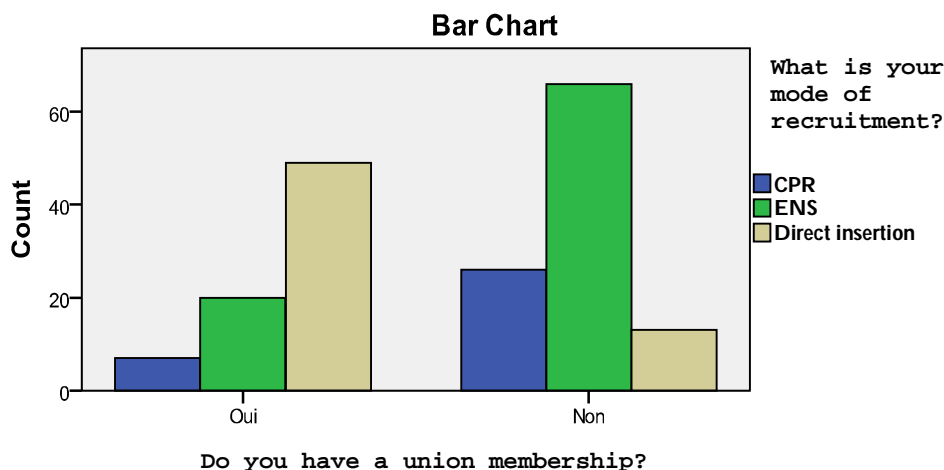


Figure 11: Chart of teachers' union membership and recruitment mode

Comment:

79% is the highest percentage of union membership among teachers whose mode of recruitment is direct insertion, while other modes of recruitment namely CPR and ENS have a low rate of unionism.

This result confirms our assertions for the previous question. So to check if union membership depends on the mode of recruitment, a chi-square test is

required to see if there really is a significant relationship between the two variables.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Khi-deux de Pearson	53,166^a	2	,000
Rapport de vraisemblance	55,185	2	,000
Association linéaire par linéaire	48,364	1	,000
Nombre d'observations valides	181		

a. 0 cellules (,0%) ont un effectif théorique inférieur à 5. L'effectif théorique minimum est de 13,86.

Contingency coefficient: **0,476**

Table 17: Chi-square test of trade union membership and recruitment mode

Comment:

- The result or the value of chi-square is: **53,166**;
- The df or degree of freedom of the test is: **2**;
- The exact meaning (bilateral) or p-value = probability of committing the alpha error is 0,000;
- The contingency coefficient is: **0,476**.

The margin of error is 0,000 and this value is less than 0,05 , so there is a significant correlation between the union membership and recruitment mode whose power is 47,6%.

3.3. Profiling of the survey population

Data analysis through the IBM SPSS Direct Marketing technique allows excellent knowledge of the survey population and to understand deeply the behavior of teachers and their social trends.

IBM-SPSS Direct Marketing allows for analysis without difficulty and with a guarantee of reliability.

In this analysis, the teachers' clustering is carried out based on four features:

- Identification features such as gender, age and marital status;
- Professional features: as the length of service and discipline taught;
- Features membership in school councils;
- Features membership in administrative, associative, union and political bodies.

Under the modalities of the answers IBM-SPSS Direct Marketing technique:

- The segmentation of the population in clusters;
- Profiling teachers who share common characteristics that distinguish them

from other clusters;

- Further we can develop a continuous improvement strategy for each cluster teachers, in other words, to introduce targeted improvements in selective character.

❖ **Question 6:** What are the teachers' clusters who share the same profiles that relate to the following characteristics: gender and political affiliation?

To answer this question, we makes a statistical analysis through the technique of Direct Marketing data, this technique allows segmenting the population of teachers in a number of clusters according to the features and interests in common.

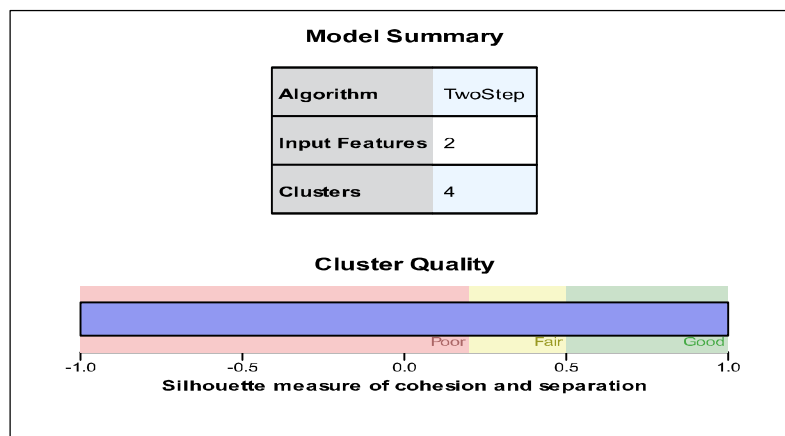


Figure 12: Model viewer 1

Clusters				
Feature importance				
1,0 <input type="checkbox"/>				
Cluster	1	2	3	4
Features	Do you have a political affiliation? No: 100%	Do you have a political affiliation? Yes: 100%	Do you have a political affiliation? Yes: 100%	Do you have a political affiliation? No: 100%
	What is your gender? man: 100%	What is your gender? man: 100%	What is your gender? woman: 100%	What is your gender? woman: 100%

Table 18: Breakdown of clusters according to gender and political affiliation

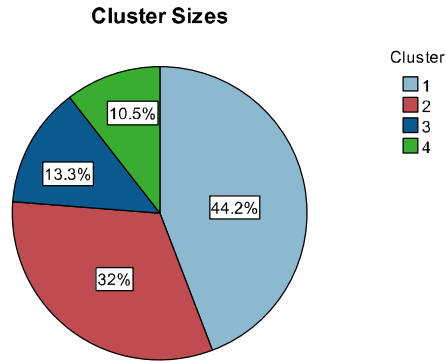


Figure 13: Breakdown diagram of clusters according to the model summary 1

Comment :

	Frequency	Percentage
Size of Smallest Cluster	19	10,5%
Size of Largest Cluster	80	44,2%
Ratio of sizes: Largest Cluster to Smallest Cluster	4,21	

Table 19: Terminal clusters in common profile according to model summary 1

The results are displayed in the Cluster Model Viewer:

- The model summary indicates that four clusters were found based on the two input features (fields) that we have selected namely the teachers' gender and their political affiliations;
- The cluster quality chart indicates that the goodness of this cluster solution is perfect in the extent that the value of silhouette measure of cohesion and separation is: 1,0 .

Example of a cluster: 100% of teachers in the Cluster 1 which is 44.2% of the sample have a profile in common: they are all male and have no political affiliation.

- ❖ **Question 7:** What are the teacher's clusters who share similar profiles, which relate to the following features: gender and trade union membership?

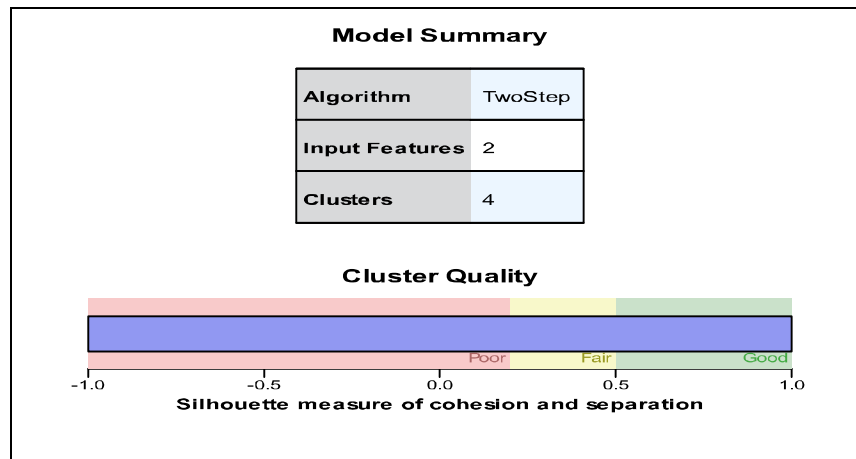


Figure 14: Model viewer 2

Clusters				
Feature importance				
1, 0 <input type="checkbox"/>				
Cluster	2	1	3	4
Features	Do you have a union membership? No : 100%	Do you have a union membership? Yes : 100%	Do you have a union membership? No : 100%	Do you have a union membership? Yes : 100%
	What is your gender? man : 100%	What is your gender? man : 100%	What is your gender? woman : 100%	What is your gender? woman : 100%

Table 20: Breakdown of clusters according to gender and union membership

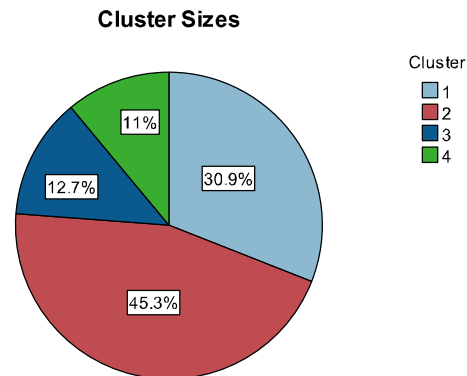


Figure 15: Breakdown diagram of clusters according to the model summary 2

Comment :

	Frequency	Percentage
Size of Smallest Cluster	20	11%
Size of Largest Cluster	82	45,3%
Ratio of sizes: Largest Cluster to Smallest Cluster	4,10	

Table 21: Terminal clusters in common profile according to model summary 2

The results are displayed in the Cluster Model Viewer:

- The model summary indicates that four clusters were found based on the two input features (fields) that we have selected namely the teachers' gender and their union membership;
- The cluster quality chart indicates that the goodness of this cluster solution is perfect in the extent that de the value of silhouette measure of cohesion and separation is: 1,0 .

Example of a Cluster: 100% of teachers in the Cluster 1 which is 45.3% of the sample have a profile in common: they are all male and have no union membership.

❖ **Question 8:** What are the teacher's clusters who share similar profiles, which relate to the following features: political affiliation and academic study level?

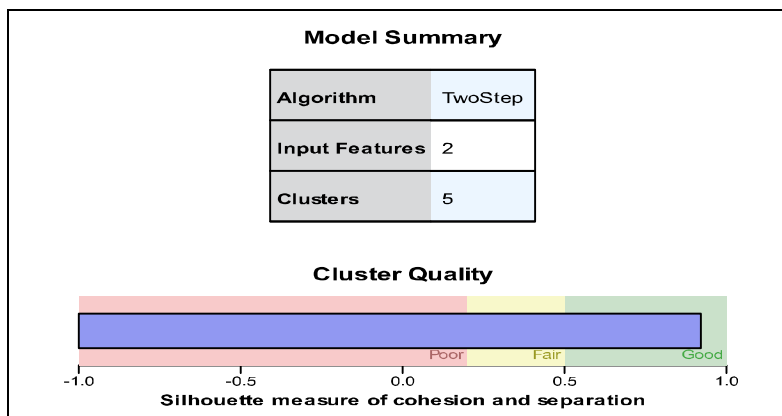


Figure 16: Model viewer 3

Clusters					
Feature importance					
■ 1,0 ■ 0,9 ■ 0,8 ■ 0,7 ■ 0,6 ■ 0,5					
Cluster	4	3	1	5	2
Features	What is your level of academic study? Licence : 100%	What is your level of academic study? Licence : 100%	What is your level of academic study? DESS/DESA/Master : 100%	What is your level of academic study? DESS/DESA/Master : 100%	What is your level of academic study? DEUG: 58,8%
	Do you have a political affiliation? Yes : 100%	Do you have a political affiliation? No: 100%	Do you have a political affiliation? No: 100%	Do you have a political affiliation? Yes : 100%	Do you have a political affiliation? No: 58,8%

Table 22: Breakdown of clusters according to level academic study and political affiliation

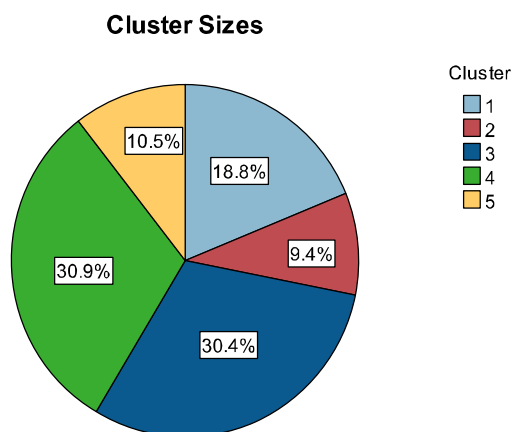


Figure 17: Breakdown diagram of clusters according to the model summary 3

Comment :

	Frequency	Percent
Size of Smallest Cluster	17	9,4%
Size of Largest Cluster	56	30,9%
Ratio of sizes: Largest Cluster to Smallest Cluster	3,29	

Table 23: Terminal clusters in common profile according to model summary 3

The results are displayed in the Cluster Model Viewer:

- The model summary indicates that five clusters were found based on the two input features (fields) that we have selected namely the level academic study of teachers and their political affiliation;
- The cluster quality chart indicates that the goodness of this cluster solution is perfect in the extent that de the value of silhouette measure of cohesion and separation is: 0,9 .

Example of a Cluster: 100% of teachers in the Cluster 1 which is 10.5% of the sample have a profile in common: they all have a postgraduate degree: DESS, DESA or Master and all have a political affiliation.

❖ **Question 9:** What are the teacher’s clusters who share similar profiles, which relate to the following features: union membership and academic study level?

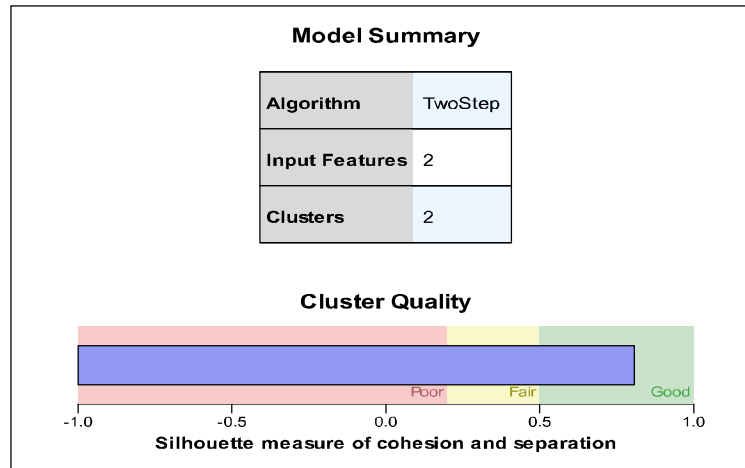


Figure 18: Model viewer 4

Clusters		
Feature importance		
■ 1,0 ■ 0,9 ■ 0,8 ■ 0,7 ■ 0,6		
Cluster	2	1
Features	What is your level of academic study? Licence : 88,6%	What is your level of academic study? DESS/DESA/Master : 65,8%
	Do you have a union membership? No : 100%	Do you have a union membership? Yes : 100%

Table 24: Breakdown of clusters according to level academic study and union membership

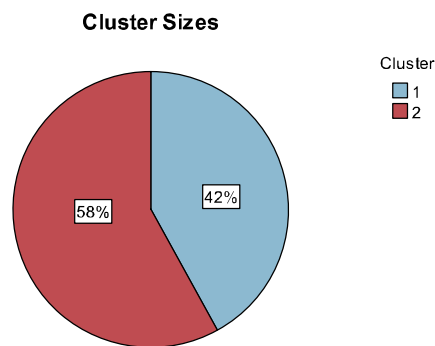


Figure 19: Breakdown diagram of clusters according to the model summary 4

Comment :

	Frequency	Percent
Size of Smallest Cluster	76	42%
Size of Largest Cluster	105	58%
Ratio of sizes: Largest Cluster to Smallest Cluster	1,38	

Table 25: Terminal clusters in common profile according to model summary 4

The results are displayed in the Cluster Model Viewer:

- The model summary indicates that two clusters were found based on the two input features (fields) that we have selected namely the level academic study of teachers and their union membership;
- The cluster quality chart indicates that the goodness of this cluster solution is perfect in the extent that the value of silhouette measure of cohesion and separation is: 0,8 .

Example of a Cluster: 65,8% of teachers in the Cluster 1 which is 42% of the sample have a profile in common: they all have a postgraduate degree: DESS, DESA or Master and all have a union membership.

3.4. Teachers' clusters and organizational climate

In the next articles we are interested in how these teachers clusters interact with nine dimensions of organizational climate illustrated in Figure 20 to produce perceptions of well-being or criticality that determine the quality of work life.

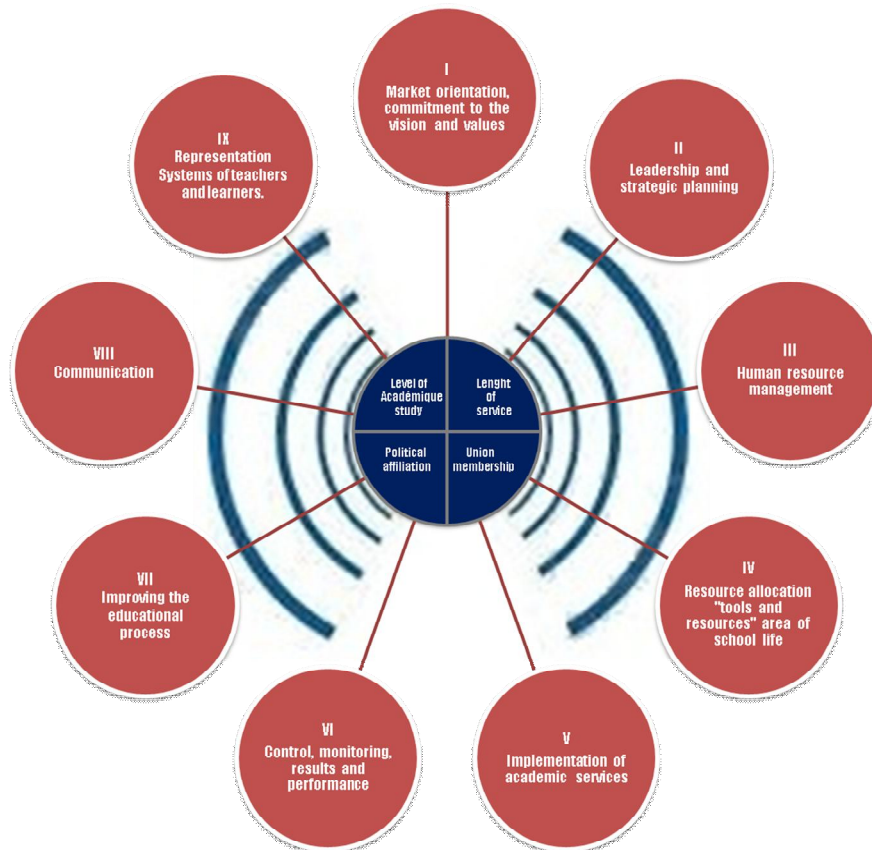


Figure 20: Interaction between teachers' clusters and organizational climate

4. Conclusion

The first clause is qualified precursor to the extent that it allowed us to draw the first description of the sample. This research section extends over three phases:

Phase 1: The statistical analysis of the frequency has enabled us to gain an insight into the features of the teaching staff on a personal and professional level, also about their administrative membership, associative membership, union membership and political affiliation.

Phase 2: The statistical study of inter-variable relationships revealed several significant correlations, the most notable are:

- Political affiliation and age;
- Discipline taught and level of academic study;
- Level of academic study and length of occupational service;
- Union membership and level of academic study;
- Union membership and mode of recruitment.

In future articles, these significant correlations will be taken into consideration when analyzing the impact of organizational climate on quality of teachers' perceptions.

Phase 3: Statistical analysis using the IBM-SPP Direct marketing technique has enabled a clustering of the teaching staff to highlight a variety of profiles that have common interests and share similar features like gender, level of academic study and union membership and political affiliation.

These results will allow us to:

- Provide targeted improvements and selective nature adapted to each group of teachers;
- Develop the communication strategy that respect the union and political guideline of teachers;
- Compare the effectiveness of improvements and modes of communication introduced.

References:

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