

**The stability of the institution between the managers strategy
and the worker confidence
(An analytical study of the university of laghouat)**

Received date: 04/11/2022 Accepted date:16/12/2022 Published date:28/03/2023

Boudali Benaoun ¹ Mohammed Nouri ² Tayeb Ouernid

1University of Laghouat, Algeria, Email: bts.benaoun@gmail.com

2University of Laghouat, Algeria, Email: nourimohamed71@gmail.com

3University of Laghouat, Algeria, Email: httayeb1917@gmail.com

Abstract:

The manager is the main and effective element in the process of organizing the university institution through all levels of management, such as : planning, organization, motivation and control, and others. The manager strategy is considered as an effective tool in the university institution.

Keywords: manager ; university ; institution ; strategy, quality

Corresponding Author: Boudali Benaoun, Email: bts.benaoun@gmail.com



1. Introduction:

The research aims to reach achieved results by adopting scientific methods and statistical techniques, And We notice that the indicator of the expectation of the university administration is on its objective which should be affecting the development of the organizational structure and raise the accumulated experiences has a relation with the indicator of the university administration interest in the continued stability of the workers capacities according to the calculated and scheduled values in the chart.

And the type of the relation between the two indicators is forward and the link is very weak. And this confirms the validity of the hypothesis represented in the two indicators, that is to say that the members who expect the objective of the university administration should be affecting the development of the organizational structure and raise the accumulated experiences according to (yes) and (no) and (sometimes) scale, they have a very weak positive forward relation with the interest of the university administration in the continued stability of the workers capacities with (yes) and (no) and (sometimes) scale.

2. the problem of the research

The manager is the main and effective element in the process of organizing the university institution through all levels of management, such as :

planning, organization, motivation and control, and others. The manager strategy is considered as an effective tool in the university institution. It has become very necessary to shift towards the strategic management which contributes in the success of the strategies and achieving the objectives of the university institution, especially in relation with the management performance improvement through the competencies, knowledge and quality. And this has made the human resources function turns from its managing frame to the strategic role which gives the university institution a strategic dimension in leading and efficiency of performance to reach the international universities class in the strategic and scientific managing.

According to what has been said we have set up the following questions :

1-Does the manager efficient strategy lead to the raising of the stability of the university institution in laghouat ?

3. The research hypothesis

Whenever the administrative management of the manager is strong, the average of problems will decrease in the university institution in laghouat, and its stability will increase.

4. Place and time of the research

4.1 Place of the field research

The research has been dealt in the university of laghouat, and its axes were the general secretaries of the faculties. we set up several visits to the six faculties of the university among them the members of

the research, and observing the members of the sample groups in the limited place. We focus on the services presidents and the general secretaries of the faculties. We set up exploring interviews concerning the subject.

4.2 Time of the field research

The field research started after finishing the exploring research. It was in the beginning of January 2016, as a study action. that took a month in order to collect the surrounding facts of the phenomenon of the administrative stability of the university of Laghouat in a frame of a scientific and systematic path when coming down to the field with precise and distained methods and corrected and completed ways in order to collect, order, organize, classify and quantify data, and deduce the results from the represented sample of the administrative managers and general secretaries of the faculties in order to generalize it in managing the university as a whole, after being able to set up controlled indicators in the study questionnaire through the real field in the faculties of the university during the discovering period.

5. Population and sample of the field research

The period of selecting the elements of the research population which will represent the sample is very important in the research. Therefore, and in the light of our definition of the problem and the special scales, we have to precise exactly the concerned population in our study, and we have to choose with attention the observation according to the laws of how taking the samples statistically and the ways of precisig the average that represents correct and studied

sample of the managers of the administration of the university."The statistical populations study mainly rely on taking all the elements of the population to identify the characteristics and marks of this population. In generally, the marks of any population are fixed amounts for a single population, but they differ from a population to another, and they give to this population its special characteristics in contrast with the other. Because of many difficulties that prevent us from studying all the population elements through a total limitation way, we deal with our study on a small part of this population or what we call « a sample ».Because it is not practical for the researcher to get data from all the members of the population, but he could get them from a small group from it. And this is what is known from the scholars of statistic by (a sample)."(Mondher Abrougui, 2008, p09)

5.1 The sample of the field research

The process of selecting the elements of the sample from the primitive population(university) is one of the problems of the observation way. It stopped at the primitive population size. "There are ways of selecting the samples, but the type of the sample, and the procedures of selecting it from the statistical population differs. The main consideration that the researcher should take into account is getting the suitable sample. In fact, the main norm that the sample being suitable is that which satisfies the researcher. Some researchers refer to their friends, neighbours and relatives in order to take members among the sample." (M. Mrabet, 2016, p07)

5.2 The way of taking the research sample size

We relied in our research on the statistical method in taking the representative sample. Whereas, the researchers refer to precise the size of the sample through using statistical methods avoiding the abusive way in order not to face critics, and reduce the importance of the scientific work and the effort that the researcher makes."The researcher faces two main possibilities when precisising the sample size statistically. He should not be able to know the number of the statistical population elements, or he should be able to know it. Finally, a side may propose the researcher a specific number of respondents to be his research subject. In that case, the researcher tends to precise the average of the error in this sample to be sure of the importance of data which he will get, and how long this sample represents the population taken from it."

(Mondher Abrougui, 2008, p10).

Since the statistical population of our research is well known, and we could precise it through starting from official statistics taken from administrative ressources concerning the presidents of the services and the general secretaries of the six faculties of Ammar thlidji unoversity of laghouat. So, the total primitive population is 06 general secretaries and 36 sevice presidents from all the laghouat university faculties, getting a total of 42 managers."We follow the following steps to precise the sample size : " (Mondher Abrougui, 2008, p12).



6. The method of the field research

After having the results of the exploring study, and according to the research problem, we can precise the method and the suitable technique tools for the research. This will be happened after the exploring study procedures concerning the phenomenon of laghouat university stability in the recent years according to the specific managing of the services presidents and the general secretaries in the faculty on the top. After our attempting to understand and analysing the properties of managers and describing the workers in the university of laghouat. Relying on the scientific path, and conceptual system for building the problem, and after the supported methods help in the research concluded from the exploring study such as, inductive, deductive, statistical methods. We relied on the analytical and descriptive method in our research in order to describe laghouat university stability in a precised and limited way in the field. Then, we analysed its contents, because the nature of the studied phenonmenon is functional in the frame of organization and work represented in the fewness of the problems average in laghouat university institution supported by the statistical method.

7. the field research techniques

7.1 Observation

The field observation was a tool which was accompanying us during our research since we are workers at this university. Our

research started from the exploring studies through our field visits to some faculties among them, the human and social sciences faculty in the real field which were a supported tool for the primitive technique for adjusting some indicators derived from the hypotheses according to our epistemology observations of the selected sample of the managing workers.

7.2 Personal interviews

After dealing with direct and indirect observations concerning the administrative stability of the university of laghouat, we viewed that we needed some special interviews with some personalities whom have an importance and a direct link with the phenomenon. We did that in order to discover the phenomenon as it is « unworked » to reach explanations about unobserved dimensions of the phenomenon in the university administration to protect its stability and adjusting its indicators.

7.3 The questionnaire

After analysing the concepts variables of the hypotheses into their dimensions and components and indicators, we can through controlled indicators ask a group of closed questions according to the nature of the hypothesis which should be organized, ordered, sequenced, clear, brief and precised according to each variable. After testing it in the field through a discovering study as a sample distributed to some respondents who are workers and managers and presidents of services in the six faculties in the university of laghouat. And after correcting its validity and stability, and judging it by a



group of teachers to be sure of its validity and stability, it will become through statistical methods such as Conbrach's Alpha coefficient and Split-half coefficient and the internal conformity of the indicators of the questions of the questionnaire which are derived from breaking-down of the hypotheses. Then, it will become a tool that expresses the presented hypotheses. then, it will become valid, stable, and right to be applied in the field, and ready to be distributed to the workers of the university as a sample.

7.4 The validity of the questionnaire

We mean by validity, the test which is valid and through which we test what is set for testing. For example, the meter is used for measuring lengths, so, it is a valid test. It is the same as the Kg which is used for testing weights, and the clock is used for testing time. And the tests differ in their validities according to their approaching or farness from the character measurement which is aimed to be measured. So, testing any behaviour of persons towards any action that reaches a level of (0.8) is more valid than any other test of any person behaviour that does not reach this level. It means that, it is more valid than the test that reaches a level of (0.5) in testing the person behaviour. So during the exploring study, we judged the questionnaire .We relied on the calculation of the validity of the questionnaire through the validity of the controllers who are teachers at the university of laghouat. We exposed the questionnaire to ten controllers (teachers) in order to know their opinions about it .we

mean, about the adjusting of the hypotheses indicators and the control in general. So, this was concerning the side of the external form of the questionnaire and the type of the questions that suit the hypotheses. That means that « the opened questions, closed questions, and type of tests,....ect, and how long the questions of the questionnaire are adjusted. In other words, (Are there any questions that do not serve the hypotheses ? And how is the conceptual language level of the hypotheses indicators in the questionnaire ?-Is the questionnaire questions degree simplified and not boring for the respondents ?-Is the hypotheses indicators degree clear in the questionnaire ?-How long are the hypotheses indicators precised in the questionnaire ?-How is the systematic presentation level of the questionnaire ?-Is the questionnaire questions degree derived from the breaking-down of the hypotheses dimensions ?

-How long are the questionnaire questions ideas smoothly ordered without being confused with the concepts of the independent and dependent variables ?-How long is the repeated and non-repeated questions degree in the questionnaire serving or not the hypotheses ?-How long does each phrase represent the space belonging to it ? - Adding or deleting some items or modifying them.)

-Modifying all the items that express the hypotheses indicators.

According to that, we carried on setting the modifications suggested by the controllers(teachers) in order to have the questionnaire right to be applied. After discharging controlled data which were collected through statistical program in the social

sciences(SPSS) in order to know the validity of the questionnaire through Cronbach's Alpha coefficient which its value is limited between (0.....1).

Whenever the got value approaches to (1),we say that the questionnaire approaches to the validity more. Therefore, it will be stable and right to be distributed, of course after deleting the weak and negative values which approach to (0.19) and less. And the results got were cleared as follows :

7.5 The results of the validity of the questionnaire through Cronbach's Alpha Coefficient

Table 1. Clearing the validity of the questionnaire through cronbach's Alpha coefficient before modifying some of the items of the questionnaire.

(Results of the outputs of the statistical program for social sciences)

Number of items(axes controlled by the teachers)	Cronbach's Alpha coefficient value
11	0.539

Source: Spss program output

Table 2. Clearing the validity of the questionnaire through cronbach's Alpha coefficient after modifying some of the items of the questionnaire.

(Results of the outputs of the statistical program for social sciences.)

Number of items(axes controlled by the teachers)	Cronbach's Alpha coefficient value
11	0.735

Source: Spss program output

8. Analysing the results of the questionnaire validity

Through the obtained statistical results from the statistical program (SPSS) of the social sciences, we noticed that the value of Cronbach's Alpha which expresses the validity of the questionnaire is 0.539, before deleting and correcting the non-suitable items in the questionnaire which were controlled by the teachers. Their agreement was about the second item which expresses the external form degree of the questionnaire. Its value was negative (-0.542). We have cleared it in the chart. The external form of the questionnaire was rebuilt again, and Cronbach's Alpha coefficient was calculated again as well. So, the value was raised to (0.735). It is a value which expresses the validity of the questionnaire, because it approaches to (01), and it is not less than (0.5). Therefore, we can say that the questionnaire has become right to be applied in as a technique.

9. Stability of the questionnaire

We mean by stability of the questionnaire its firmness and not its contradiction with itself, and it should give the same results if we applied it again on the same sample in the same conditions with changing both place and time. To be sure of the stability of the questionnaire questions, we have to use one of the stability coefficient, such as « Cronbach'Alpha » coefficient or « split-half » one. The stability coefficient should take values between (0.....1). If there is no stability in the questionnaire questions, the coefficient value will be (0). In contrary, if there is a total stability, the coefficient value will be (01).

Whenever the coefficient value of the stability approaches to (01), the stability will be raised and the questionnaire will be right to be applied, because of the raising power of the stability coefficient value. And whenever it approaches to zero (0), the stability will be dropped, and the questionnaire will not be right to be applied, because of the decreasing power of the stability coefficient value. We tested



the questionnaire in the field to be sure of its stability through calculating Cronbach's Alpha coefficient. We distributed 07 questionnaires with a percentage of 17% from a total of 42 from the sample of the services presidents and the general secretaries of the six faculties. After collecting data, then discharging them using the statistical program of the social sciences(SPSS),we calculated the questionnaire stability coefficient through Cronbach's Alpha. Then, we set a modification on the questionnaire indicators which their items values were negative or weak and approaching to (0.19), to have the questionnaire right to be applied, and knowing if it is stable or not, or if it can be applied again on the same sample in other conditions. Whenever the obtained values are very closed to (01),we can say that the questionnaire is approaching more to the stability. Therefore, it will be stable and right to be distributed after deleting the negative and weak values. And the results got were cleared as follows :

10. The results of the stability of the questionnaire through Cronbach's Alpha Coefficient

Table 3. Clearing The value of the questionnaire stability through Cronbach's Alpha coefficient before modifying some of the questionnaire items.

(Results of the outputs of the statistical program for social sciences.)

Number of items(questions of the questionnaire)	Cronbach's Alpha coefficient value
11	0.717

Source: Spss program output

Table 4. Clearing The value of the questionnaire stability through Cronbach's Alpha coefficient after modifying some of the questionnaire items.

(Outputs of the Statistical Program for Social Sciences.)

Number of items(questions of the questionnaire)	Cronbach's Alpha coefficient value
11	0.781

Source: Spss program output

11. Analysing the results of the questionnaire stability

We notice that the results obtained through the statistical program of the social sciences (SPSS),the cronbach's Alpha value which expresses the stability of the questionnaire is 0.717 before deleting or correcting the questionnaire questions which are not suitable through testing them on an average of a sample of respondents. They answered all the questions with their agreement on all the contents of the questionnaire, except those concerning personal ones or the intermidiate ones which were not coordinated according to the answers of the tested sample from the services presidents in the faculty of human and social sciences, which some of their values were zero value, as sex, and negative as age and civic-situation, and number of children, and weak as living situation, And ones which raised to the stability coefficient value of cronbach's Alpha, of a value of 0.781,if they were deleted, as it is cleared on the statistical chart in the appendix. But since the first value is raised, and which is a value that expresses the stability of the questionnaire, because it approaches to (01),and not less than (0.5).Therefore, we can say that the



questionnaire is right as a technique to be applied several times on the same sample in different other conditions.

12. Exposing the study data charts

The statistical charts are submitted to scientific tests when setting them, even they were simple that express one variable,"or compound that express two variables independent and dependent" (Raymond Quivy, 1988, p207) , or another variable which is a controller, or what is called « tester » which proves or denies the relation between two variables.

The organization of the chart is very important, whereas the independent variable is vertical in the chart, the direction of the average will be horizontal, and the contrary is right. And the reading of the charts will be on the general direction from the independent to the dependent towards general total."The methodological ways of setting the statistical charts and the way of comparing the values to averages"(Philippe Cibois, 2007, p20-21); is among the characteristics of the statistical of the charts.

13. Checking the hypothesis validity and error

After ending the steps of collecting, organizing, discharging, and ordering data, then quantifying field data of the questionnaire from qualitative to quantitative in the statistical charts, and after the statistical and sociological analysing of the charts, we move to the « hypothesis testing »(José Labarere, 2011, p09),for the checking if the constructed hypotheses are valid or wrong through using the statistical scales.

13.1 Testing the research hypotheses

The mathematical analysis of the sociological phenomenon gives a quantitative and numerical explanation to the field event through moving from qualitative data to quantitative data for the temporary and relative answers of the problem which includes in our research a typical structure of the conceptual system of two main variables, The independent one is effectual, and the second one is influenced. It is the dependent one which gives answers to questions of the problem. It is cleared as follows. (whenever the administrative managing of the manager is strong, the average of the problems at the university institution in laghouat will be reduced, and the stability will be achieved). Here, we notice that the concept of the administrative managing of the manager expresses the independent variable, and the concept of the reduction of the average of problems and the stability expresses the dependent variable which is the studied phenomenon. Therefore, through this simple precision of the two variables, systematically, we can clear the analogy and the causal order to build this question into mathematical and algebraic of the causal relation between them ; $y=(x_1,x_2,\dots,x_n)$. (Raymond Boudon, 1967, p343) We can explain this mathematical basic, the function $F(x)=y$, this means that (y) is the phenomenon of the university administration stability. And it is the dependent variable of the hypothesis. The function $F(x)$ is $F(x_1,x_2,\dots,x_n)$, it is the cause of this phenomenon which represents the independent variable (x) which is the administrative managing of the manager with its several indicators (x_1,x_2,\dots,x_n) . In case, the causal relation is positive forward, and which is limited in the independent variable as it was explained $F(x)=y$, and in case, the causal relation is negative backward, it will be as follows ; $F(1/x)=y$. So, the causal relation between the two variables (independent and dependent) will give the link between data of (y) with the signification of (x), whereas, the indicators of the independent



variables increase or decrease, the indicators of the phenomenon will increase or decrease as well.

After adjusting the hypotheses indicators of the problem question of the phenomenon, and knowing the quantitative values through SPSS (Statistical Package for Social Sciences) program of social sciences, and confirming it through Excel program relying on it for the data drawings, and the classical arrangement through discharging all the questions on one paper, and adjusting all the charts which serve the strength of the simple and compounded hypotheses, we moved to the verification of the validity or error of the formulated hypotheses, and studied the relation between the hypotheses indicators with indicating the stronger indicator and precisising the extent of the spreading and disarranging these indicators which the sample members are marked by as characteristics which control this phenomenon. Starting from this point, we notice that there is a liner relation between the phenomenon of the university administration stability, and the causes lead to it. Here, we can get the following basic which clears the relation between the dependent and independent variables through the appearance of the independent controller indicator coefficient as administrative managing of the manager, and continuous changeable, and unstable on the phenomenon. $Y = a_1x_1 + a_2x_2 + \dots + a_nx_n$, (Raymond Boudon, 1967, p373) where as $(x_1, x_2, \dots, x_{11})$, which are the indicators of the independent variable, and it is considered in our research as indicator of the administrative managing of the manager as a strategy. We have limited the total of these indicators which are (11), but $(a_1, a_2, \dots, a_{11})$, they are indicators coefficient, and they are also changeable according to the studied sample members, which its total gives the correlation coefficient between the two variables (independent and dependent).

13.2 The statistical methods of testing the independence of the two variables of the hypothesis and precisising their relation

We can use a statistical method which supports the sociological analysis with a tester of the extent of the independence of the two variables(independent and dependent) with q2 coefficient. And we can also deduce the type of the relation between these two variables. In this side of our research, we rely on two methods to be sure of the validity of all the hypotheses. The first method was the classical way, and the second one was to support and control at the same time the results of the first method through using SPSS program(computer),in order to verify and check the hypotheses testing in the field, and to be closed to the results got from SPSS program(computer).In order to verify and check that, we should use q2 scale for testing the initial hypothesis (Ho) or the first and second part considering them as initial hypotheses. We follow the steps of the statistical method through which we can compare the results got.

13.3 Verification of the validity of the hypothesis strength indicators

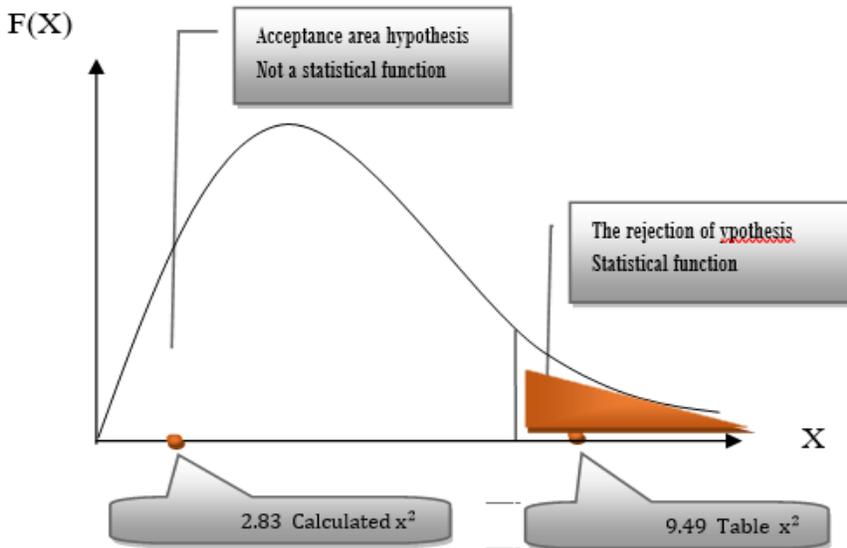
We start to verify the extent of the independence of the independent variable indicator and its impact on all the dependent variable indicators which express the strength of the hypothesis. We follow the statistical method which studies the relation and its nature with the suitable correlation coefficient according to the scientific steps to calculate (Chi-squared test). (BLEL azouzi, 2006, p53).

Table 5. Clears the test results of (Chi-squared test) and the correlation coefficient of the relation between the university administration objective to affect the organizational structure development and increasing its accumulated experiences, and its interest of the continued stability of the workers capacities:

Dependent variable / Independent variable		Is the university administration interested in the continued stability of the capacities of the workers?				Degree of freedom D(f)	Test of Q2 through χ^2	
			Yes	No	Sometimes		(Chi-squared test) value	probability Sig. (p-value)
Do you expect that the university administration objective is to affect the organizational structure and raise the accumulated experience?	Yes	Q (actual)	06	16	02	04	4.345	0.361
		Q (expected)	06.5	16.9	02.6			
	No	Q (actual)	01	03	04			
		Q (expected)	01.2	03.9	3.9			
	Sometimes	Q (actual)	03	04	03			
		Q (expected)	03.3	04.2	02.5			
(Chi-squared test)	calculated	2.83			The result of the test			
	tabulated	9.49			We found the value of probability equal 0.579, it means that it is bigger than 5%, Therefore we accept that there is a relation between the independent variable indicators and the dependent one in this chart for this second hypothesis.			
Doubt level in the research field (α)	5%							
Certitude level in the research field ($1-\alpha$)	95%							
The result of the test	We notice that the calculated Q2 through the correction of Yates with a value of 2.83, of the second hypothesis indicators less than the scheduled α^2 with a value of 9.49 at the level of 0.05 and the freedom degree 4 of the hypothesis, and this has lead us to deduce that there are no main differences between actual and expected repetitions. It means that there is no independence between the two variables. Therefore, we accept the hypothesis starting from its indicators, and it is valid.....Therefore, there a relation between the independent variable.							
Conformity correlation coefficient	+0.19	The number of the chart cells less than total which is more than 4				12		

Source: Prepared by the researcher and Spss program output

Fig.1. A curve showing the area of acceptance and rejection of hypothesis indicators in the field of verification



Source: Prepared by the researcher

13.4 Sociological analysis of the test results

Through the results of (Chi-squared test), we noticed that the indicators of the university administration objective is to affect the organizational structure and raising its accumulated experiences, and this has a relation with the university administration interest of the continued stability of the workers capacities according to the calculated and scheduled values in the chart. And the relation between the two variables is forward, and the link is very weak. This will confirm the validity of the hypothesis represented in these two variables. This means that the members who expect that the university administration objective is to affect the organizational structure and raising its accumulated experiences according to (yes) and (no) or

(sometimes) scales, have a very weak positive forward relation with the university administration interest of the continued stability of the workers capacities, with the same scale (yes) and (no) or (sometimes). And this confirms the hypothesis according to acceptable space of the hypothesis shown in the chart above.

14. Analysis results of the research hypothesis

The results of subjecting the hypotheses for testing them through statistical methods, and specific scales are set for testing the concepts indicators independence limits that express the two variables. And also searching for the nature and the type of the relation between them to be sure of their validity or errors. So, it is confirmed that among testing two charts of the hypothesis, there is a relation between the indicators of the hypotheses independent variables and the indicators of the dependent variables. And there is no independence between them. And we also confirmed the relation between their indicators in the chart. In other words, the calculated (Q) was less than scheduled (Q). And this confirms that there is no statistical significant relation between the indicators, but there is a relation between them. Therefore, there is a clear impact between the indicators of the independent variable on the indicators of the dependent variable. We were obliged to find out the link type between all their indicators. The results were clearing that among these indicators, there are relations. One is forward positive with a link with its indicators, and other which is

very weak as a part from the independent system, and the administrative actors of the research sample as a part of the administrative system. So, they are results that confirm the relatively validity and rightness of the hypotheses in the real field. And this will give an explanation of the role that the workers play among them the managers at a special case, such as services presidents and the general secretaries through their perfect managing of the institution in order to keep on protecting the university stability.

15. Conclusion

We dealt in our research with the exposition of the qualitative and quantitative data analysis in details through the statistical methods and sociological analysis, and compound charts which serve the hypotheses. We used the suitable methods to achieve the validity of the hypotheses and reach the results that complete the hypotheses results, and deduce the confusion of the total results from the beginning through which we can conclude and generalize them from the sample on all the universities.



✚ Bibliography List :

1. BLEL azouzi, (2006) , *L'outil statistique en expérimentation*, opu, édition,1.044862, Algérie.
2. Mondher Abrougui,(2008) , *Biostatistique*, Cours & Activités,([http://pf- mh .uvt .rnu .tn /32/1/SN1011.pdf](http://pf-mh.uvt.rnu.tn/32/1/SN1011.pdf)).
3. M.Mrabet, (2016), *L'échantillonnage*,([http://fmp.um5.ac. ma/ sites /fmp.um5.ac .ma/files / L%E2%80%99E chantillonnage.pdf](http://fmp.um5.ac.ma/sites/fmp.um5.ac.ma/files/L%E2%80%99Echantillonnage.pdf)).
4. Mondher Abrougui, (2008), *Biostatistique*, Cours & Activités,; ([http://pf-mh.uvt.rnu. tn/32/1/ SN1011.pdf](http://pf-mh.uvt.rnu.tn/32/1/SN1011.pdf)).
5. Mondher Abrougui, (2008), *Biostatistique*, Cours & Activités,; (<http://pf- mh.uvt.rnu.tn /32/1 /SN1011.pdf>,).
6. Raymond Quivy, Luc van Campenhoudt, (1988), *Manuel de Recherche en Sciences Sociales*, 2- Ed.BORDAS, Paris.
7. Raymond Boudon, (1967), (*L'analyse mathématique des faits sociaux*)), *Revue Française de sociologie*, vol. n°4 ;centre national de la recherche scientifique ; France ; octobre-décembre.
8. Philippe Cibois, (2007), *Les méthodes d'analyse d'enquêtes* ; [http: classiques.uqac.ca /contemporains/cibois_ philippe/ metho_analyse_enquetes/metho_analyse_enquetes .html](http://classiques.uqac.ca/contemporains/cibois_philippe/metho_analyse_enquetes/metho_analyse_enquetes.html) ; Paris V.

9. José LABARERE,(2011),*Principe des tests statistiques d'hypothèse*, http://unf3s.cerimes.fr/media/paces/Grenoble_1112/labarere_jose/labarere_jose_p03/labarere_jose_p03.pdf).

