SINGULARITY OF QUALITATIVE RESEARCH: FROM COLLECTING INFORMATION TO PRODUCING RESULTS

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SUMMARY

It is generally accepted that the choice between a qualitative and a quantitative approach appears to be dictated by the criteria of effectiveness regarding the orientation of the research (to create or to test). The main objective of qualitative research is to create a methodology for approaching, understanding, analysing and explaining management phenomena at a social or company level. The objective of this contribution is to present a reflection aiming at understanding qualitative research according to the dual perspectives of final aims and means used.

Key words: qualitative research, validity, reliability, triangulation, case study

It is generally accepted that the choice between a qualitative and a quantitative approach appears to be dictated by the criteria of effectiveness regarding the orientation of the research (to create or to test). The main objective of qualitative research is to create a methodology for approaching, understanding, analysing and explaining management phenomena at a social or company level. The objective of this contribution is to present a reflection aiming at understanding qualitative research according to the dual perspectives of final aims and means used.

For Usunier et al (1993), valid research is that of a thesis, undertaken successfully, accompanied by the publication of articles in reviews with reading panels and the publication of research reports. For Thiétart (1999), good research emerges from the quality of the dialectical changes and the relevance and coherence between the object, the method and the analysis. For David (2000) research can be qualified as 'valid' when the researcher is not only reconstructing in a neutral way the elements of simple knowledge formulated from the elements of observation, but also assuming the responsibility for his interpretations of the

functioning and the possible evolutions of the organised system that he is studying. Finally, for Martinet (1990) the question "Should research explain the world or change it?", is at the heart of the problem when defining valid research.

Taking these different questions and different ways of looking at management science as a basis, our objective will be to show how a qualitative approach can be classified in the category of a scientific process. Or, more precisely, by citing the epistemological and methodological debates which stimulate research and enable a 'positioning', our intention will be to formulate criteria which will make it possible to justify the valid and reliable character of research using qualitative approach.

In order to achieve this, we propose to explain the conceptual context of our reflections. We consider, in a similar way to Ladrière (1992), that epistemology characterises at least one means of critical knowledge, regulating our own approaches, explaining our validation criteria and creating methods which enable the field of knowledge to be enlarged. Evoking the concept of a methodology in research, we will consider that it refers to producing knowledge and includes not only the means of collecting data

but also its processing. Finally, as far as your research approach is concerned, we think that it should not only lead to a better understanding of management situations and types of management, but should also help the actors in firms to understand how they can progress carrying out their activities by defining methods and useful tools. Therefore in our opinion, management science research has simultaneously two types of knowledge objectives: the understanding of current practices of the social actors within companies and the creation of concepts, methods and tools which enable this practical state to evolve. In this way we agree with the socio-economic conception of research (Savall 1984).

Thus a triple dimension [analysing,-explaining-prescribing] is at the centre of our research problematic.

I –Relevance of qualitative research: what criteria?

All management science research can be defined by three factors with which most researchers are in agreement. (Wacheux, 1996) : the process can only succeed if it is concerned by limited objective, defined by state of knowledge and social need; the research is constructed around the definition of a precise question, representing a desire for proof which contributes, by answers and/or questions, to all the types of problematic in the field of envisaged research; the research necessitates the presence of a relevant methodology which makes it possible to gain access to, to register and to analyse situations through representations and observations.

This methodology enabling access to data, recordings and analyses is, in the cases that we will explain more beforehand, based on a solely qualitative approach. To present the criteria which are relevant to qualitative research, we propose to evoke their principal limits, as they are traditionally presented. The first is the lack of objectivity in the results obtained since, as Thiétart (1999), points out, one of the characteristics of qualitative

approaches is to take the researcher's subjectivity into account as well as that of the subjects studied. A second limit is connected with the validity of the results. Although qualitative approaches make it possible to obtain an internal validation of the results, researchers often limit themselves to the study of a particular case, which therefore brings their external validity into question. Thus the qualitative researcher is generally faced with the following critiques: objectivity, methods of analysis, interaction in the field and lack of representativeness with regard to generalization.

We will try, in our article, to shed light on these limitations, by pointing out that in our opinion, research must study, understand and even transform the behaviour of the actors within organisations.

11 – Characteristcs of qualitative research

Three premises form the basis of the use of qualitative methods (Wacheux, 1996): the first is that, to understand a phenomenon, all the characteristics, the significances and the values of the entire social fact need to be taken into consideration.; the second is that when realizing a project, the researcher is faced with a double duality (between the object and the actors); finally the aim continues to be that of producing an emergent theory.

One of the objectives of research using a qualitative approach is the 'in depth' study of social phenomena (Wacheux, 1996).One of the main characteristics of qualitative approaches is their ability to describe, to understand, and to explain the complexity of the organisations and the actors who work in them, (Marshall and Rossman, 1989).

Qualitative researches are often qualified as comprehensive, that is to say, they try to understand the sense(s) of management situations and phenomena, rather than validating a few hypotheses with a small number of variables. In comparison with purely quantitative methods, qualitative methods therefore centre their attention on more deeply

exploring the type and the origin of opinions or positions. They also make it possible to understand the reasons why companies choose certain criteria to evaluate their performance rather than others, as well as the consequences of these choices (Usunier, 1993). Qualitative approaches therefore produce abstractions to provide explanations, unlike quantitative approaches which examine generalization for validity. Constructed around interactions, through exploration or actions, they make it possible to contextualise by taking the management situation as unity for analysis (Wacheux, 2005).

The qualitative approach leaves the researcher with a large degree of liberty when realizing his project. The theoretical framework is not finalised before the field study as research questions may arise through the interaction between theorisation and empirical realism (Wacheux, 1996). According to Stake (1995), the research question can even be modified during the research according to the results obtained in the field. Finally Thiétart (1999) also considers that qualitative approaches make it possible to obtain a greater fluidity and flexibility when collecting data.

12 – The condition of validity and reliability in qualitative research

Our conception of research is one of co-production of knowledge in the field, according to explicit hypotheses which have a specialized status. In our view, research involves the researcher.(It is concerned with constructing a procedure, which cannot avoid critical questioning, and a reflecting attitude on the part of the researcher). We will look at management situations such as those defined by Girin (1989, 1990, " situations where the participants are reunited and have to accomplish, in a specific time period, a collective action leading to a result subjected to an external judgement".

Managing the interaction between the researcher and the field includes two aspects, the first one concerns access to the field, the second the management of these trips back and forth for extracting material. Girin (1989) talks about methodical opportunism to qualify the construction of a research device, which, for us, corresponds to an architecture of alternative internal-external means of access to the field, that is to say, to negotiation devices for these means, and immersion and distance management on the part of the researcher with regard to the field.

121 – Validity and reliability of qualitative research

In management science, as in all the other disciplines, the question must be asked with regard to the type of approach chosen by the researcher and the kind of knowledge produced. This question is concerned with the validity and the scientific quality of the research.

The global validity of the research seems to necessitate the implementation of different types of validity; the validity of the methodology, the validity of the measuring instrument, the internal validity of the results and the external validity (Drucker-Godard et al., 1999). According to the authors, to test the validity of the construction in qualitative research consists of ensuring that the variables used to make the concepts studied operational are the good ones and to evaluate to what extent the research methodology makes it possible to answer the questions that were initially asked and which constitute the aim of the research. The internal validity of the research consists of ensuring the relevance and the internal coherence of the results obtained in the study. However, the external validity in a research concerns the possibility of applying the results obtained in the sample to other elements (generalization) in different time and place situations.

In qualitative research, reliability can, amongst other things, be estimated through the coding of the original data. The evaluation of the reliability of the research (reliability of research results) thus consists in ensuring and verifying that the different coding operations will be able to be repeated with the same results obtained by different researchers. This reliability seems to us to be guaranteed by the structured method of

the codification and the classification of the data, at the same time experimental and bibliographic, as in the three case studies that we will present in the second part. This technique, using construction and a tree structure of themes, sub-themes and key ideas has in fact enabled us, not only to simply retain the real essence of each piece of data by taking it out of its context, but also to situate it in this tree structure in a very precise manner.

The setting up of a methodological device for accessing the field and capitalizing on the data is the first aspect but does not however guarantee the 'objectivity' of the field data. When the researcher goes out into the field, this constitutes a second way of reducing potential biases. To explain this phenomenon of making the material 'objective', Savall and Zardet (1996) developed the principle of 'cognitive interactivity' which they define as an 'interactive process (between the researcher and the actors within the company) for producing knowledge through successive iterations, carried through with the permanent desire to increase the significance value of the information dealt with in the scientific work. The knowledge is not totally created by one or the other of the actors; it is obtained in the immaterial interval which connects the two actors. Thus, in the same way that Corcuff (1995, shows that the interest for the sociologists is one of " the implementation of a sociological reflexiveness on the part of the researcher, as he must integrate into his construction of the object," a 'field' researcher must at the same time integrate reflexiveness in the construction of his object, but also in his research. This reflexiveness therefore goes beyond mere dialogue situation and lies at the very heart of the research process.

122 – Criteria for valid qualitative research.

According to Thiétart (1999), the type of knowledge that the researcher wishes to obtain depends on the kind of reality that he wishes to study, the type of relationship between the subject/object and the vision of the social world that the researcher has. Qualitative research necessitates integrating into the process of investigation, a conception and an explanation of the means he intends to use. The position that the researcher takes up in the research process must not be removed from the objectives that he fixes for his research and the means at his disposal. (J. C Moisdon, 1984, G. Marion, 1995). According to Grabet (1998), it is standard behaviour to link exploration with a qualitative approach and that of verification with a quantitative approach. It is therefore accepted that qualitative approaches generally follow an inductive reasoning. According to Thiétart (1999), inductive logic "makes it possible to go from individual observations to general terms", whereas "deductive reasoning goes from general to particular"

David (2000) highlights the advantages of management research based on a recursive approach alternating between abduction- deduction- induction in order to go beyond the classic situation of an inductive approach as opposed to a hypothetical-deductive one. The aim for every researcher would therefore be to find the means of combining these approaches into a single project providing knowledge of the contingent phenomena. Because of his interaction with the field during his experimentation, a researcher using a qualitative approach, such as we have described above, links together and alternates the clinical research in organisations and that of the laboratory work using an iterative formulation of the hypotheses based on the analysis of the facts observed. The alternation between conceptualisation and experimentation signifies that certain stages in the field work consist of testing the hypotheses, the concepts or the tools, then evaluating the results of this experimentation in order to refine the modelling, the concepts, even to propose new concepts which result from the knowledge obtained through the experimentation. Thus the researcher alternates between the hypothetical-deductive phases and the logical-deductive phases, which are in all part of a heuristic iterative process. These well-connected phases are therefore complementary.

It therefore appears that each research problem that is considered merits reflection on the choice of methods, techniques and tools that are the best adapted to tackle it. What is more, it would be advisable for the researchers to try to jointly use inductive, deductive and abductive approaches when dealing with a new question. At the different stages of a research programme, it is possible to use different methodological approaches. (Roussel and Wacheux, 2005).

Our research is based on these precepts and concerns that can conveniently be called a 'triangulation of the field data' defined as the usage of multiple and independent approaches for collecting and measuring the data (Usunier, 1993). As Wacheux (2005) specifies and in view of the elements that we have just presented, it appears necessary that qualitative researchers better explain the manner in which they collect, analyse and interpret the data and the epistemological postulates which their approach is based on. This would be to include their projects in a research programme and legitimise their presence vis-à-vis the actors.

If the analysis tools could be standardised, (interviews, observations, analyses of the contents…), a controlled research process would constitute a supplementary guarantee of validity. It is not in fact the results which are scientific, but the approach used to produce them and this methodology has to be applied to the results. Thus, the theorisation would not be a end but a means(Wacheux, 2005).

II – The variety of research strategies and requirements when producing knowledge for scientific purposes : example case

The three example cases that we present illustrate how, based on researches all using qualitative approaches, the results can be considered as reliable and valid. These cases are all different with regard to their field, their objective and their research strategy. Their common factor was the rigour in the methodological process and the research protocol used, and finally that of the research- actor interaction as a means of producing knowledge.

These three cases studied management situations such as they are to be found when researchers first arrive in an organisation, then the phenomena observed based on the changes made to the objects studied.

2.1 Typology of invariants in a homogenous organisational population : exploiting the data originating from qualitative and quantitative data research methods.

In the example that we will present below, (Rymeyko, 2002), we will try to explain and justify our choice, that was to combine qualitative and quantitative approaches in order to try to obtain 'reliable knowledge,' (Wacheux, 1996), of the organisational behaviour in solicitors' offices.

If the complementary nature of quantitative and qualitative approaches is today recognised, another method was highlighted by Thiétart (1999) , which involves respecting the chronology when using each of these methods. In fact, a qualitative approach seems to be 'an indispensable prerequisite' for all quantitative studies in order to define the research question, to become familiar with this question or with the opportunities and the empirical constraints, to clarify the theoretical concepts or to explain the research hypotheses" (Lambin, 1990).

The first stage in our research involved exploratory research regarding the main management problems in solicitors' offices. It consisted of an 'empirical exploration' phase (Thiétart, 1999), that is to say, a field study of these management problems without taking into account our prior knowledge of the subject. For this, we had individual and collective interviews with 63 solicitors and 213 collaborators in 58 solicitors' offices. These 'semi-directive' interviews enabled us to collect the views of the people. These collected phrases corresponded to the views of the participants and made it possible to make more exact and more detailed

analyses than through the answers obtained using the questionnaire. The diagnostic phase was completed by the analysis of documents and the method called direct observation.

The second stage in our research consisted of validating the results obtained during the interviews carried out in the exploratory phase. For this, a 'less detailed' complementary diagnosis phase was set up in 132 solicitors' offices. Unlike the interviews in the first stage, those carried out in the second stage, were undertaken in a directive manner using precise interview guidelines in the form of a questionnaire. The aim was to validate the results of the exploratory phase and for these to be broader by increasing the size of the sample. In the second stage, 242 solicitors and 817 collaborators were interviewed.

The following diagram recapitulates the stages in our research process, firstly including a qualitative approach corresponding to an exploratory phase, then a quantitative approach in order to discover the similarities within the homogenous groups (Wacheux, 1996) and to validate the results of our research.

Thiétart (1999), points out that it is impossible to carry out statistical analyses with non-numerical variables. This is why we tried to use the qualitative data in the form of quantitative data. For this, we firstly used nominal variables represented by the phrased cited by the participants in the exploratory phase.

Secondly, the choice was made to just retain the key ideas when making the diagnoses in the 132 solicitors' offices. For this, 60 key ideas, frequently cited in the exploratory phase by the solicitors and the collaborators were used to prepare the questionnaire and these were divided up into different themes concerning management problems.
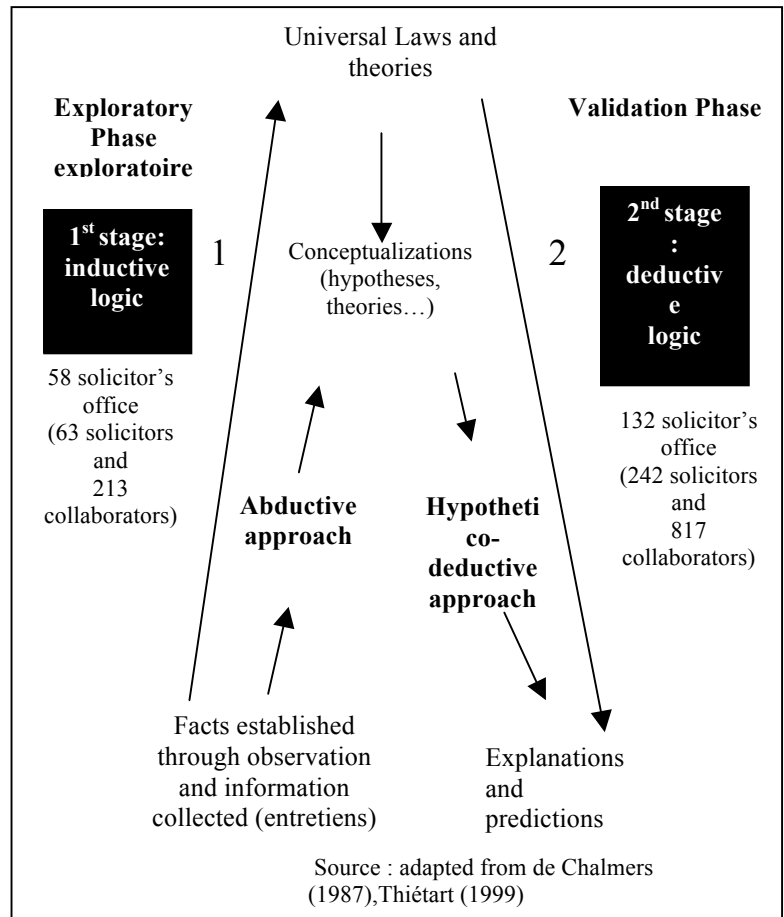
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Figure no 1: The different stages in the research

The tree structure of the different key ideas used for exploiting and presenting our research results constitutes in our opinion, a way of representing a complex situation such as the management problems in solicitors' offices. (Savall and Zardet, 1996 ; 2004). The key ideas enabled us to tranfom the "natural language" of the actors within organisations into "modellised language"(Savall et Zardet, 1996). These will therefore constitute the qualitative and quantitative analysis in our research.

Phase 1	Phase 2	Phase 3
Collection of nominal data	**Collection of nominal data**	**Creation of numerical data**
Phrases expressed by the actors	Key ideas	Quantifying of the number of key ideas Per organisation studied
It is very difficult for us, as four associates, just to meet and to take decisions since we do not share enough information	Lack of communication between the associates	

Figure n°2 : The process for exploiting qualitative and quantitative data

calculation of three management problematic indexes, one for each of the three themes previously defined in our research: the 'strategic practices theme', 'the activities management' theme, and the personnel management theme. The management problematic index was calculated from the key ideas in each theme. For each management problematic encountered in a solicitors office, one point was added to the management problematic index. After having established the key ideas for the 132 solicitors' offices, we therefore obtained a management problematic index for each of the solicitors' offices. We carried out this exploitation task for each of the three themes. Adding together the three management problematic indexes enabled us to obtain the social performance level for each of the solicitors' offices. The results presented below represent the calculations for the management problematic indexes using a number of key ideas expressed by the solicitors and the collaborators in the diagnostic phase.

Finally, in order to obtain more in-depth analyses, we transformed this nominal data into numerical data. For this, we counted the number of key ideas, from each of the solicitors' offices, which the solicitors and collaborators had spoken positively about this number ranged from 0 to 60

As we already had quantitative data, we therefore proceeded to make some statistical analyses. In particular, we made in-depth analyses using the software SPSS[6] in order to ascertain the social performance level in the studies and to obtain a typology of the strategic behaviour in solicitors' offices. By making a typographical analysis, we wished to classify and constitute groups of solicitors' offices according to their organisational problematic. (Durrieu and Valette-Florence, 2005).

To obtain this typology, we used a classification technique based on the

Management problematic indexes	132 solicitors' offices	Class 1	Class 2	Class 3	Class 4
' strategic practices '	3,7	6	1,66	3	4
'Activities management '	12,72	14,52	11,91	11,81	11,88
'Personnel management'	11,92	14,26	10,41	10,81	11,6

Figure n°3: Typology of dysfunctioning practices

In our research, we wished to take into account advantages and limitations in qualitative and quantitative analyses by reconciling the two approaches. In fact, the first exploratory phase carried out through a more detailed diagnosis, observations in the field and the study of documents, enabled us to make an 'in-depth'

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6   Statistical software

study. (Wacheux, 1996), the strategic and organisational context of the solicitors' offices thus enabled us to obtain an internal validity for our results.

Figure n°4 Quantitative exploitation of the qualitative data

Moreover, the external validity of our results seem to be ensured thanks to the validation of the results obtained through qualitative approaches carried out in a large number of solicitors' offices and which consisted, at the beginning of our research, in targeting the problematic and establishing the research hypotheses. The aim of these quantitative results was to try to obtain generic knowledge and to conceptualise in order to produce abstractions with an intermediate significance, (Wacheux, 2005), even if this data remains simplistic for explaining and understanding the problematic in solicitors' offices. As Wacheux (2005), points out, " no tool, no method can be substituted for the researcher's comprehensive and ' interpreting intelligence".

2.2 Typology of the invariables in the internal collaboration mechanisms of the actors: research into a negotiated management structure for visualising

interactions on an individual level and a collective one (spectral analysis)

This development is based on the results of research-intervention carried out in five public or private profit-making or non-profit making organisations (Delattre, 1998). The aim of the research was to highlight the incidence of collaboration between the actors with regard to the global management of an organisation. We carried out a comparative study that we qualified as spectral. Spectral analysis was developed in the social sciences, boosted by the structuralist movement, (Durkheim, 1895 ; De Saussure, 1931 ; Dumezil, 1949 ; Levi-Strauss, 1958 ; Duby, 1971, and also by the interest shown in the notion of a systematic approach. (Piaget, 1968, Le Moigne, 1977). The contributions of Foucault (1966), Goldman (1977) and Bourdieu (1980) limit the universalism of the approach (Lallement, 1990). Savall (1984). (Lallement, 1990). Savall (1984) used the term of spectral analysis in the context of an epistemological reflection with regard to research methodology and the quality of the scientific information in management science. In his opinion, '*spectral analysis*' designates bringing to the forefront and studying phenomena concerned with an interaction situation. He insists, in the context of a research process, on the status of the field studies, the dialectics of the visible and the hidden concerning the phenomena, the research material and the extraction of this latter.
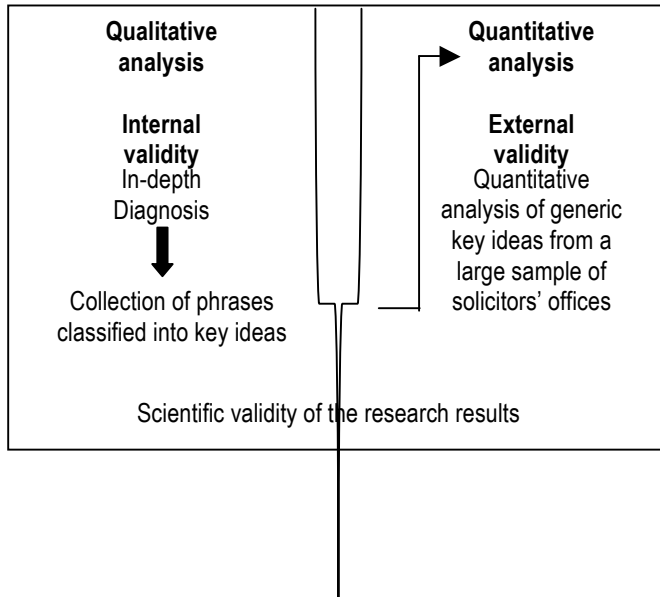
Spectral analysis is based on a global analysis of the scientific structure that it intends to develop. Spectral analysis is relative; its aim is not to tend towards universality in an interpretation but rather to follow a process of searching for invariants: the juxtaposition of scientific construction and that of reality. The analysis is comprehensive as there is no single key, it is necessary to be able to judge the value of the details in comparison with the whole (Keyserling, 1928).All attempts to objectively understand something of the human elements must firstly encounter a situation where the experience is reduced to one of a system of correlative markers Granger (1967). The question therefore concerns the hypotheses on

which the selection and the structure of these latter are based. An analysis of the extractive essence with that of the visible-hidden dialectics: producing a sense is an active and voluntary process. (Keyserling, 1928). It is not so much the ability to capture the images which is important as the construction of the interpretation of the image itself. Science is only what is hidden. (Bachelard, 1970, 1981). Producing a sense implies an active process to capture the images in order to go beyond the phenomenal appearance to the underlying construction of the interpretation of the image. The scientific information produced in the context of visible-hidden dialectics is founded on the qualitative development of information, as much in the field as for the researcher. The spectral analysis includes an instrumental dimension: extraction and action tools. Objectivity is achieved and developed through successive decentring of the subject in respect of a delimited field of research in which it is possible for spirits to agree, (Mouchot, 1990). The researcher's neutrality is an illusion, because of the apprenticeship ability of the actors who are the subject of the observation.

Spectral analysis in sciences corresponds to an attempt to go beyond appearances, it stems from the searcher's questioning of the realities that he encounters. The epistemological positioning achieved is the starting point of exploratory research on an experimental basis of five organisations.

Sectors	Profit-making	Non-profit making
Private	[O1] [O2]	[O5]
Public	[O3]	[O4]

Figure n°5 : The positioning of the five organisations according to the criteria of the sector to which they belong and the status of production

The organisations are presented in a synoptic manner. A global and comparative vision was preferred as an objective rather than just presenting monographs. The organisation [01]: a group of bookshops employing 161 people. The research-intervention problematic was to contribute to improving the immediate results and the company's profitability by developing the quality of the service for clients and mobilising the human potential within the organisation. The organisation [O2] : a company producing equipment in metal for kitchens and employing 230 people. The activity concerned the constructions of metallic installations (self-service, fish counters etc) and kitchen equipment for collective installations. The task of the research-intervention was to prepare the certification (ISO 9002) by mobilising the human potential. The organisation [03]: a large telecommunications company employing 389 people. The task of the intervention was to strengthen the supervisory role in order face difficulties connected with transfers due to a partial privatisation. Organisation [04]: a technical and testing establishment employing 1100 people attached to the Directorate General for Armament. The task of the research-intervention was to prepare the establishment to carry out its mission with a reduction in its operational budget by using the potential of available human resources. Finally, the organisation [05], a company providing sports services of an associative type [1901 law] attached to the French football federation. 130 volunteers assisting four salaried employees managing 26,000 licences in one head office and 266 affiliated clubs. The task of the research-intervention was to improve the management in the association by developing the quality of the client service (licence holders).

Several one-dimensional interpretations can be made of the internal collaboration mechanisms of actors concerning the overall management of an organisation.
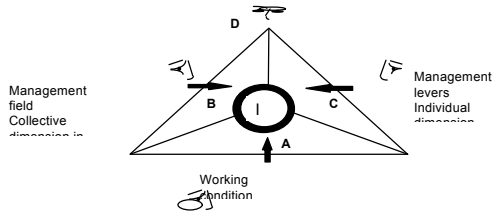
Figure n°6 : The differential point of view in spectral analysis.

Zone A represents an interpretation of the organisation from the point of view of the working conditions for the actors within the organisation (socio-economic interpretation grid) Zone B presents an interpretation of the organisation according to the fields of management (collective dimension) and the quality of the collective operating mode as experienced by the actors. Zone C presents an interpretation of the operating mode based on the perturbations experienced by each of the actors. (individual dimension). The viewpoint D shows a two-dimensional interpretation (spectral construction). The visible-hidden dialectics are based on the structure of the collective and individual dimensions within the organisation.

The management problematic cited concerning the working conditions within the organisation, and connected to a key idea, was studied using a logic of double coordinates. The reprocessing of material can be read in the following figure in lines for the fields (collective dimension) and in columns for the management levers (individual dimension) as is presented in the following figure.

Figure n°7 : The basis of experimental material

At the centre of the figure, we have positioned our basic experimental material, key ideas; the generic and representative expression of the management problematic as viewed by the actors. A basic framework was obtained for a spectral analysis using the same group of key ideas which were reprocessed. The following figure shows the spectral images produced after the reprocessing of the key ideas enabling us to dissociate the collective dimensions(on the left) and the individual ones (on the right) but also to distinguish between the views of the executives (P1) and the non-executives (P2) in the actors' space.

Figure n°8 : A spectral representation of the organisation : two differentiated and overlapping levels
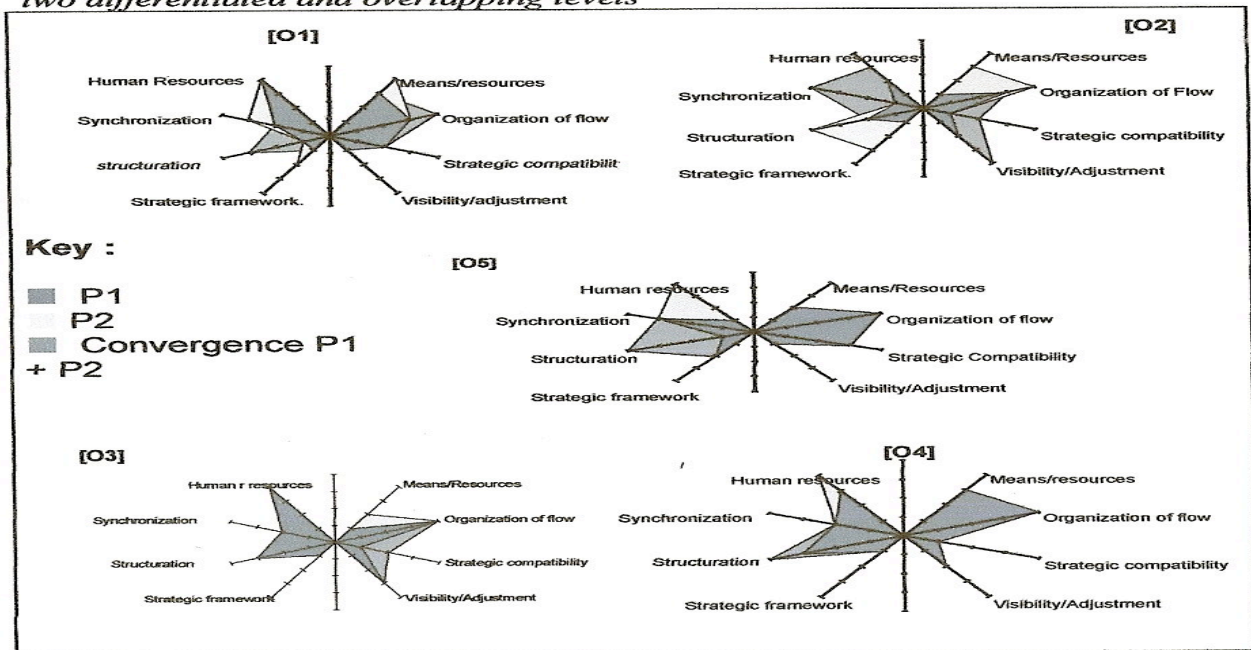
The visualisation of the spectral image for management includes a degree of contrastmarked by a 3 coordinate definition: two specific zones for each sub-population:: P1 Ç P2 = {Ø} and a convergence zone: {P1 U P2}.

The contrast produced improves the overall perception of the views of the individuals in the organisation with regard to the curbs they encounter that prevent them from taking actions. Three overlap limits can be noted for each dimension of the spectre. The cohesion overlap (I) : there is a total convergence zone between the two sub-populations. It is characterised by a general withdrawal on the part of the actors, a collective renouncing in order to invent, create and undertake actions to overcome a context of activity which seems to be have been imposed on them. This withdrawal corresponds to the feeling of extraneousness highlighted by Seeman (1959) in his works on alienation in the workplace. Three organisations have this type of overlap [O3] in the collective

dimension, [O4] and [O5] in the individual dimension. The two other overlaps illustrate the differential perceptions. The shared overlap ([): the convergence zone is completed in the margin by a differential positioning of the two sub-populations. The differential overlap (m): the convergence zone is the basis of two marked types of differential positioning. These two overlaps indicate the tension zones and the differentials of perception in the way of deciphering a situation and/or to carrying out a task or an activity. They illustrate a shared distribution of skills negotiated within the context of the inter-relations between the actors. The spectral image produced defines in an instant « t » the individual and collective negotiations between the actors.

2.3 Typology of the invariants in a trans-organisational problematic situation: research into an approach methodology which solves then improves a management situation.

The aim of this third example of qualitative research is, in the field of companies, organisations, employees in illiteracy situations (Moulette, 2002).The theme is, which is characterised by a broader formulation, associating the field and the research objective: finding a solution to illiteracy situations in companies

The companies in our experimental database are principally companies in the private industrial sector. This experimental database is made up of different sources: case studies, monographs, contacts with the 'world' of company illiteracy or even reports concerning actions to combat illiteracy in companies. All the experimental material therefore emanates from different sources corresponding to different types of data collection. Some material originates from the reprocessing of research-intervention data; other material had only been used for processing work in the laboratory; finally, certain material originated from research contracts with the Ministry for Employment or from direct participating observations during national or regional events on the theme of illiteracy.

Different techniques for collecting data were therefore used in the context of this qualitative research:

- Semi-directive interviews with the aim of at gathering qualitative data on the proven or presumed causes and the examples of illiteracy in companies. The choice of this method for collecting data can be explained by the desire to collect primary data that was as reliable as possible concerning the situations experienced by the actors within the organisation.
- - directive interviews with the aim of collecting quantitative data for evaluating the costs of actions for solving these illiteracy situations detected during the first interviews;
- The study of company documents in the experimental database such as the organisational charts, memoranda, activity reports, activity sheets and management indicators. These documents provide a better understanding of certain expressions used by the actors in the organisation during the interviews;
- Delegated observation. It consists of asking an actor in an organisation to measure and verify the qualitative, quantitative or financial

indicators in order to obtain current information on the consequence of illiteracy situations.

- Floating observation as viewed by Evrard (1993). It concerns both the researcher's data collection of the non-verbal indicators observed during the interviews (gestures, spatial relationships, tone etc) and the collection of verbal and/or non-verbal indicators during visits to the company and when present in the field.

- Finally the sixth technique for collecting data is participating observation. It occurs during participation in meetings of management groups, when aiding a company to undertake a project or during each appointment or meeting with at least one of the members of the organisation

These last two techniques were rigorously formalised by recording the phenomena and the behaviour observed in writing in order to remember them and make them exploitable. These two types of observations, floating and participant, made it possible, as Wacheux (1996), pointed out, to study both the visible and the latent characteristics of management situations.

The data processing was achieved using several types of recording tools. For the data originating from the qualitative interviews, detailed notes were taken and 'witness' phrases were chosen (in an illiteracy situation) and were filed in 'drawers'. The analysis of the interviews was schematized in the form of a tree structure.

The results of the data exploited were presented to all the actors questioned. The presentation was in three phases. The grouping together of the principle phrases emanating from the interviews, a summary of these phrases and the researcher's opinion of the idea expressed or not expressed by the actors. This stage of grouping together the results is one of the means of judging the quality of the information obtained in the investigation field since it is an ideal place for observing the impressions of those

interviewed on the significance and the relevance of the information gathered.

Other means were implemented o ensure the quality of the field information: obtaining a minimum of two informants on the same theme, diversifying the type of informants by associating different hierarchical levels, having the information collected systematically validated and verifying its reliability.

To be able to satisfy our validity objectives, such as those mentioned in the first section, w particularly relied on the advice given by Usunier et al. (1993) to ensure the scientific nature of the research based on a qualitative approach.:

-*the first piece of advice* is to inform the subjects of the study of the research conclusions to enable them to verify that there remarks have been accurately noted and to compare their interpretations. The presentation of the results of the exploited data to the people interviewed answers this objective;

-*the second piece of advice* is to explain in detail the types of relationship and the situations with which the observations and the discussions were concerned. The *third piece of advice* is to ensure that the honesty and the respect of the values common to researchers had been well respected during the whole of the research process. These two pieces of advice were particularly heeded in the context of this research though the intermediary of a systematic formulation supplemented by terms of reference between the researcher and those researched. As Girin (1990) specified, entering the field to study a management situation must be something that is negotiated so that there is a compromise between the interests of the researcher and those of the people who have the power to open or close doors as far as observation is concerned. Our terms of reference therefore stipulated the conditions for access to the field. Our position and the consequences on actions of the research were explicitly taken into account, not with the viewpoint of 'biases' that needed to be limited, but on the contrary, as the real principles for producing scientific knowledge, such as is

stipulated by David (2000). These negotiated terms of reference specified in particular:

- -For the technical aspects: the means of collecting data, the means of using and processing the data as well as the means of collating the results obtained from the exploited data for the company concerned.
- For the diplomatic aspects: the devices for communication-coordination- comparison (management groups, project groups, working groups, face to face etc) which define a part of the space authorised for collecting data and the material to which we could have access;
- Finally, the *fourth* piece of advice is to very clearly explain the point of view adopted, the initial postulates and the context in which we would be concerned with.

Two characteristics are to be found in our research. It alternated between periods of work in a library, a laboratory and in the company and combines the creation of descriptive, explanatory and prescriptive hypotheses
Our library work consisted of reviewing the literature of the works of the principal authors who had written on themes similar to those that we used in our development of the subject. The laboratory work mainly consisted of analysing and structuring the primary and secondary data that we collected in the companies for our experimental database as well as the bibliographical data. Finally, our presence in the companies was justified by our desire to collect the primary data in the field. It is therefore difficult for us to say where this research process began. Firstly, n fact, we constructed hypotheses that could be tested in the field. and/or in the literature with the data collected, through our own reflections on such and such an aspect of our research objective and through an analysis of the literature. Our reasoning was deductive. Secondly, through field operations, formulated from the hypothesis to

be tested .either in the literature or in multiple professional contexts to discover the regular features. Here we were concerned with both induction and abduction.

Our hypotheses have therefore several origins and were formed and/or validated, during the whole of our research, by successive periods alternating between laboratory, library and company research.

This alternation between conceptualising and experimenting signifies that certain stages in the field work consisted in testing, in the sense of experimenting, the concepts and the tools in a situation of observable management, then evaluating the results of this experimentation to refine the modelling, the concepts or even to propose new concepts which resulted from the knowledge obtained from the experimentation.

We therefore reasoned in an iterative manner and even an interactive one by using either deduction, or induction or abduction. This logic was therefore used in the context of formulating our descriptive, explanatory and prescriptive hypotheses. For example, we formulated an explanatory hypothesis through abduction, and then we tested the possible consequences of this hypothesis through deduction. From this point, induction enabled us to update the rules that we had used and, in the case where the rules were invalidated, we then reformulated, through induction, the new explanatory hypotheses to be tested.

To summarize, as the diagram illustrates, abduction leads to deduction, which leads to induction which itself leads to abduction. Deduction enabled us to produce the consequences, induction, to establish the general rules and abduction to construct the hypotheses. Therefore these forms of logic, each in their own way, played a role in the construction of our hypotheses and therefore of our knowledge. Thus the permanence of this cycle registers our results in a form of reasoning which combines induction, deduction and abduction that David (2000) calls a recursive curve.

Conclusion

In management science, the researcher finds himself confronted with a large range of methodologies and approaches in order to carry out his research in the best possible way. The choice of a research methodology will depend on the objective that the researcher has previously fixed, the type of knowledge that he wishes to produce and the relations he has with the actors in the field. By presenting the three examples of qualitative research, we have tried to show how the researcher adapts his research process according to his research strategy, particularly by using different techniques for processing and analysing the data. These techniques have all the elements, if one talks of the scientific nature of the research, the advantages and inconveniences that need to be known and explained, whilst at the same time being aware that social sciences are, by essence, approximate in order to be realistic (Wacheux, 2005). In this sense, we agree with the following view " be as imprecise as possible and as precise as necessary" Arkhipoff (1984).

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