

# ‘Saying’ the Nuclear Power in France: Evolution of the Images and Perceptions of a Sensitive Theme

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**Abstract**—As the nuclear power is a sensitive field leading to controversy, the quality of the communication about it is important. Between 1965 and 1981, in France, this one had gradually changed. This change is studied here in the main French news magazine *L'Express*, in connection with several parameters. As this represents a huge number of copies and occurrences, thus a considerable amount of information; this paper is focused on the main articles as well as the main “mental images”. These ones are important, as their aim is to direct the thought of the readers, and as they have led the public awareness to evolve. Over this 17 years, two trends are in confrontation: The first one is promoting the perception of the nuclear power, while the second one is discrediting it. These trends are organized in two axes: the evolution of engineering, and the risks. In both cases, the changes in the language allow discerning the deepest intentions of the magazine editing, over a period when the nuclear technology, to there a laboratory object accompanied with mystery and secret, has become a social issue seemingly open to all.

**Keywords**—French news magazine, mental images, nuclear power, public awareness.

## I. INTRODUCTION

AS in any sensitive field leading to controversy, the quality of the communication is a major element of its mediatization. The nuclear power, probably more than any other, has no exception to this rule. The way this subject is approached has strongly evolved in the time, from a period when scientific considerations dominated to another more politically and critically. Between 1965 and 1981, “saying” the nuclear power had changed in France. Indeed, it had altered elsewhere too.

The studies led to this day have not really emphasized these changes yet. Indeed, Modigliani and Gamson dealt with the case of the USA, but not France, and not from an historical or political science point of view [1]. In France, Lecerf and Parker wrote a book about the Chernobyl accident, with its rumors, its disinformation, called a set of techniques and almost a science in the service of individuals, states, and pressure groups [2]. But, they have not gone any further. Before them, Veron talked about the Three Mile Island accident, choosing a wide range of media but on a few days and on a single event [3]. Of course, numerous references could be given about the generalities on nuclear power, science and technology, but nothing that could explain the modification of the media discourse, and thus the evolution of the public awareness.

Of course, media influence is not new: many authors have analyzed it for a long time. As for any particularly delicate facts, the way “of saying the events” in a media is symptomatic of the will of the one who presents them. Of course, one can wonder if he is or is not free of his papers, if he is or is not influenced by any pressure. This is difficult to say and would require a specific study, that of the freedom of the media, what is not the purpose of this approach today. But, beyond that, the fact is that the people – the public – hold most of its knowledge about the current events through the media, especially over the period studied here. Cayrol showed that the danger is that the prefabricated reality they draw is perceived as a real reality, when it is often nothing more than an interpretation [4]. Indeed, facts are also offered by the media.

Concerning the nuclear power, two joint but unevenly present approaches have to be taken into account: on the one hand the facts, on the other hand the interpretation which is made of them, thus the perceptions of these facts, becoming sometime imagination. The bald facts, when they are known, constitute the least common approach. The imagination replaces most frequently the facts by “mental images” which are connoted perceptions, voluntarily used to deliver a message. In the media, all these perceptions, conveyed by photographs, drawings, caricatures, specific words and expressions, contribute to shape a mental structure in minds, as many authors have demonstrated it for a long time [5]. Finally, the individual “mental perception”, associating a mental image and an explanatory model, become a “social perception” [6], as mental images have become a collective reality strongly suggested to the masses by the media.

As the media are numerous and present in various forms, a thoughtful choice had to be made. In France, between 1965 and 1981, the audiovisual media have certainly had a strong impact on the public but they have not always been accessible to all homes, as the number of receivers have only gradually increased as well as the number of channels and thus their potential attractiveness [7]. The press allied two possibilities: relying on an accessible physical support and having the profit of the continuity in time. Several options were then available: choosing a daily or a weekly press, even a monthly one, and, among this, concentrating the study on “all” the press or a single support. In order to work on the duration to perceive the evolution of the discourse, a choice was made: that of a weekly, and of a single title only, *L'Express*, which represented already about 884 copies to read carefully.

Lastly, before giving a succinct description of the basic methodologies used to achieve this study, it has to be explained that, in France 1965 and 1981, are two years

representing turning points both in the field of the nuclear concern as in terms of French domestic policy. 1965 was not only the year of the first election in France of the President of the Republic by universal suffrage, but also a year when the nuclear science and technology concerns were little important, with no quarrels yet. 1981 marked another turning point in the political history of the 5<sup>th</sup> Republic, qualified as political alternance [8], as a left-wing party, until then in the opposition, gained the President's House as well as the parliament's majority, while at the same time the questions surrounding the civilian use of the nuclear power reached their highest peak in France.

## II. BASIC METHODOLOGIES

The gradual change in the communication on the nuclear power is studied here in a same media, the French news magazine *L'Express*, over a decisive period of 17 years, between 1965 and 1981, that is to say in about 884 copies of this magazine.

*L'Express* was founded in 1953 by Jean-Jacques Servan-Schreiber and Françoise Giroud, as a supplement to the liberal newspaper *Les Echos*. It was transformed in 1964 on the model of the American news magazines. And since then, it has been the first French weekly, with between 500,000 and 700,000 copies a week – which was important in France –, and a global political positioning which placed it in the Center. Moreover, its quality of weekly gave it the possibility of approaching the news with some distance, and the ability and the means to launch consequent inquiries and studies. Lastly, there were few comparable weeklies over the period in France. For instance, *Le Point* was launched in 1972 and, as *Le Nouvel Observateur*, it has had for a long time a much lesser circulation. As for *L'Humanité Dimanche*, *Le Canard Enchaîné*, *Minute* or *Rivarol*, also present throughout the period, they could not be retained because of their different nature and their too accentuated political or satirical orientations. It must be added that to study a daily paper as *Le Monde* over a long period is insuperable for a single researcher.

Having all the copies of *L'Express* was a first step. Dealing with the way of analyzing them was a second one. As Moirand said, data collection was one of the first difficulties of a discourse analysis and, consequently, of media analysis. That was not because the data were hard to find here, but because one could easily be “drowned” in the abundance, the diversity, the eclecticism of the media discursive productions. According to a limited and precise object of research, had to be defined, at first, the outlines of the study object, “the reference corpus”, before locating the “observables” of the analysis and collecting the data of the “working sub-corpus” [9]. Here, in order to build the analysis of *L'Express* discourse on the nuclear power, two options could be considered: either were kept only the major occurrences, or were taken into account the whole articles, mentions, allusions. The second option was chosen, as the objective of the study was to identify and understand the whole communication on the nuclear power, including all the aspects of this

communication, because communication is a whole, in which nothing is trivial. Hence, at first were located all the occurrences concerning the nuclear power, by a careful reading of all the weekly copies, that is to say 884 copies with 175 pages on average, which represented approximately 154700 pages to consider. The computer research by keyword was rejected, because the variety of the terms used to describe the nuclear fact and the question of the nuclear power, from the explicit words to the periphrases and allusions, is on the basis of the reality of this study. The nuance and variety of the words are significant of the complexity of the thought, thus at the heart of this study. No software seems to be currently able to replace the reflective reading taking into account the co-occurrences. These initial locations led to a set of data to statistically use. The precise “volume” of the occurrences allowed an interesting initial analysis as for the frequency, the importance in absolute (Fig. 1) and relative values, the links with the major events of the period. It would be interesting to go further in the future, by developing the computerization of the collected data, in order to leave a “data bank” stemming from surveys and observations, as well as a mathematical modeling of this type of approach.

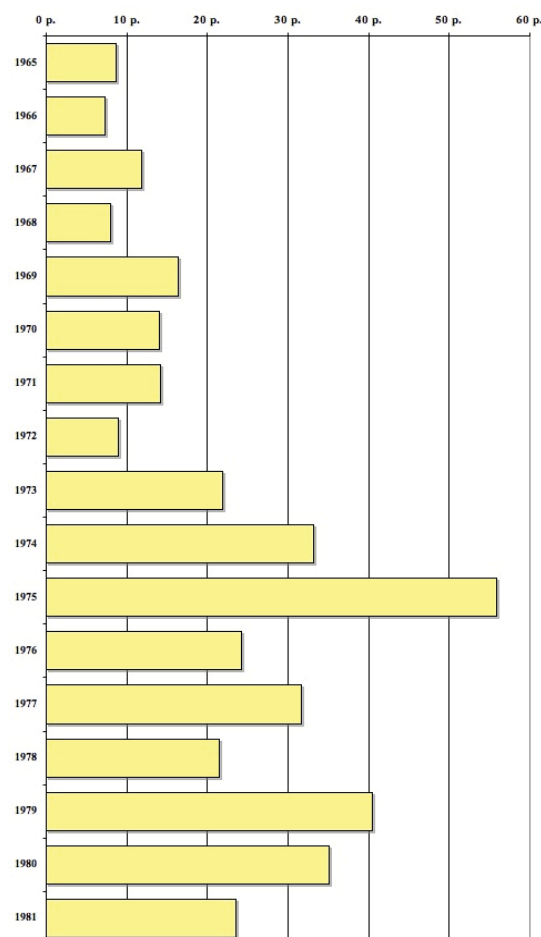


Fig. 1 Importance of the occurrences in absolute values

Secondly, the located data were analyzed, the evolution of the discourse is revealed, through the successive modulations of the vocabulary, in connection with the analysis of the “actors”: “simple” reporters, “political” journalists, researchers, field officers, economic decision makers, etc. The objective was to understand better how the nuclear power has become dialectical and political stakes, has become the support of discursive choices. The final goal, having dismantle this discursive evolution, was to bring out a set of semantic tactics towards a strategy in pejorative or laudatory purposes of the nuclear object, here still with the wish to be able in the future to mathematize these evolutions. Indeed, these modifications were analyzed in connection with the major international events, the reorientations of the French domestic policy, the growth of new political movements, the evolutions of the nuclear science and technology. As this is a considerable amount of information, which represents some 1146 occurrences over 17 years, is selected here in this paper some of the main articles as well as some of the main “mental images” aiming to direct the thought of the readers, and which have led the public awareness to evolve.

### III. MAJOR FINDINGS OF THE STUDY

Between 1965 and 1981, two dichotomous trends which were in confrontation, were organized in two axes. The two tendencies were the following ones: the arguments and mental images promoting the perception of the nuclear power, the arguments and mental images discrediting the perception of the nuclear power. The first axis was about the evolution of engineering, such as the news magazine *L'Express* represented it, with its approximations, its exaggerations, its fictions sometimes. The will was added to clarify and to make accessible to the public some concepts which were hermetic for the largest number. The second axis rested on the risks: the way the major accidents of the period were approached, and the beginning of environmental concerns. In both cases, the language has changed, as the perceptible objectives of the communication, allowing to discern the deepest intentions of the magazine editing.

From 1965 to 1967, the nuclear power was synonymous of progress in *L'Express*: no negative mental image could be found. The energy question was one of the recurring subjects treated in the weekly, with the recurring problem raised by the forward exhaustion of the fossil fuels. The answer was as recurring, the nuclear energy being then presented as “the safest answer” and as the better way to obtain electricity at a lower cost, increasing thus the competitiveness of the other industries. In a period of intense economic development, the absence of doubt was obvious, the hopes were huge, about the growth of the nuclear power plants, the exportation of the French technology, “the heavy hydrogen prisoner of the oceans” or the breeder reactors such as *Rapsodie* in Cadarache. The same positive tone could be found in the articles talking about the nuclear research (Fig. 2), so much the nuclear power was connected with the concept of future. Hence, the development of the largest particle accelerators in the world was presented in terms of international cooperation,

and not as a competition, while the gas centrifuge technology and the gaseous diffusion technology were made accessible to the readers. The only concerns were lying on the possibility for France not to have enough uranium to feed its plants. The only criticisms underlined the relative weakness of the resources and thus sometimes of the results devoted to the nuclear science and technology in France.



Fig. 2 (Professor Louis Leprince-Ringuet presenting) “The chances of the French nuclear science” [10]

In 1968, with some internal and international events, a change of tone appeared in the weekly. The competition between France and the USA was highlighted: the mental image of the American dishonesty about the fees payment for certain patents registered by French researchers such as Frédéric Joliot-Curie, as well as the question of the choice of the right nuclear reactor technology (Fig. 3), grew stronger with the recall of the decrease of the European countries independence in front of the US supremacy. However, the nuclear research was still described with enthusiasm, even though a difference has to be pointed out: now this was the European cooperation which was the main interest, as disagreements on technology developments grew. On the contrary, assurances were given that the French government now paid more attention to this field, increasing the research budget. Besides, at the same time, with the rise of the tension between East and West, the myth of the good savage and the reference to the paradise lost were developed. The media discourse emphasized the “May 1968” hopes of “returns to nature” and “true values”, far from modernity, which underlined endless discussions in the French occupied universities and which pushed dozens of young intellectuals towards many isolated rural areas. From that moment, the foundations of the future environmentalism were gathered in France, although still remaining in the unspoken.

Between 1969 and 1973, environmental concern began to grow: the theme of pollution expanded gradually and the notion of risks surrounding the nuclear technology began to be brought up. However, the arguments and mental images promoting the nuclear power still dominated in *L'Express*. With the atom, everything seemed to be still possible: for instance, in the field of medicine, an “atomic generator” was

presented as being able soon to equip pacemakers, in particular those intended to mitigate the Stokes Adams syndrome. Moreover, with the atom, everything seemed to be cheaper, especially as the oil prices began to rise and as the French government decided to give up the French technology of gas-cooled graphite moderated reactors for the benefit of the American one. The fact is that the expectations placed in the nuclear research strengthened since a real possibility emerged to use the nuclear fusion technology, announcing the prospect of unlimited energy source. However, was pointed out the too big place and the cost granted in France to basic research to the detriment of applied research, with numerous arguments showing the difficulties to conceal interest, prestige and independence. And these questions grew with the human and technological problems connected with the decision of the French government to implement for the future pressurized water reactors (Fig. 4).



Fig. 3 “Mr. Galley in front of the atomic choice” [11]



Fig. 4 Demonstration of French researchers: “How to save the French atom?” [12]

In 1974 and at the beginning of 1975, despite many articles still positive, the arguments and mental images discrediting the nuclear power increased steadily in the French news magazine, with the entrance of environmental concern, promoted by René Dumont, in the French political campaign

of the early presidential elections, followed soon by a press campaign against nuclear energy, led by *L'Express*, as its owner tried to use this theme to recover some of the political influence he had lost after being evicted from the new French government. The risks surrounding the nuclear technology were then emphasized and connected with the new mental images, associating atom with secret, death and fear (Fig. 5), leading to the claim of using less energy and more other sources than the nuclear one – that was then reinforced by the French government –, and thus leading to the claim of putting limits to the growth and consulting from now the local population before any new implementation of nuclear power plants. However, the large surveys and opinion polls launched by *L'Express* did not give exactly the expected results: certainly fears expressed about safety, wastes, environmental damages, but the people polled were still confident in the official spokesmen, approved then the nuclear power program as a national priority, were not ready to restrict their standard of living to avoid the risks put by this technology, and even agreed to live near a nuclear power plant.



Fig. 5 “Repairing uranium handling equipment in Saint-Laurent-des-Eaux plant” [13]

Certainly, the debate had gone too far in France to stop there: a parliamentary debate on energy policy was organized in May 1975. But, here again, its conclusions did not give the expected results for *L'Express* and its owner: in view of the extent of the energy crisis, no speaker of any political party rejected then the civilian use of the nuclear power. Hence, for more than one year, the way the nuclear question was presented in the weekly remained globally favorable, through the articles as well as the advertisements. Not only was shown that the opinion of the local population was taken into account, but also was put forward that this technology was safe and secure (Fig. 6), was leading to success, the one of modern and dynamic industrialists such as Edouard Empain in France, or the one of US researchers, let alone the hope carried by a

revival of the European cooperation with the JET project, thanks to the resolution of physicists and not politics, described as incapable to agree, thinking at first of the next elections. However, in connection with the political campaign of the 1978 French parliamentary elections, that seemed to lead to a victory of left-wing parties, a renewed attention was given to environmentalists, and indeed the negative aspects of the nuclear power came back. Hence, the mental image of risk became omnipresent, to the point that the association “nuclear risk” constituted a pleonasm in the majority of the articles, thus in the minds.



Fig. 6 “Security measures in Chinon plant” [14]

Despite the publicity given by *L'Express* to the “green crusade”, not only the question did not enter in the campaign but environmentalists and the other left-wing parties failed then to take power in France. As a consequence, the nuclear question almost disappeared in the weekly for many months, before reappearing with the Three Mile Island accident on March, 1979. Indeed, this accident was important and led to numerous articles, but despite the recurring use of the mental image of nuclear threat, the news magazine noticed that the nuclear danger seemed to be little to worry the population in France, who still considered the nuclear power plants as useful, even as a chance, especially as opened then the second energy crisis. Hence, the arguments and mental images promoting the nuclear power (Fig. 7) made a strong comeback in *L'Express*, including advertisements and announcements of job offers in this field. The only concerns underlined the delay taken in the construction of plants in France, and beyond the threat of energy rationing. Indeed, the opponents to this technology were not totally forgotten, but their arguments and actions were minimized, especially as they still did not propose any viable solution in the short or medium term and as they continued to multiply their failures on the political level, whereas the 1981 general elections brought a left-wing party, until then in the opposition, to power in France.

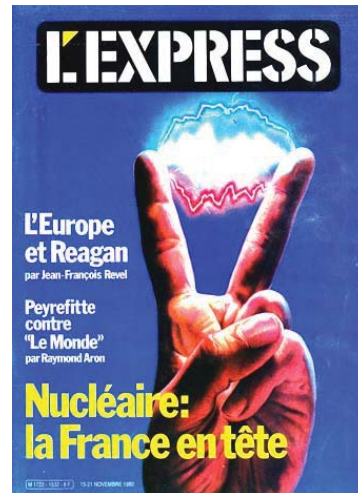


Fig. 7 “Nuclear power: France ahead”

#### IV. CONCLUSION

The balance sheet of the period is very clear. If in 1965 the occurrences concerning the nuclear power represented less than a third of those of 1981, if gradually have grown in the meantime the arguments and mental images discrediting its perception; however, in 1981 as in 1965 this question made hardly debate in *L'Express*. Indeed, over this period, this main French news magazine has apparently failed to make it a political question. Indeed, this weekly had to take into account the opinion of its readers, globally in favor of this specific field of science and technology, even though it still tried to make this opinion evolve. It must be added that, by consulting other French media of the same nature, it was clear that in 1981 the general tone was the same, the one of appeasement.

Certainly, various parameters have influenced this media discourse. The first group of parameters is totally external both to the nuclear power and to those who write in *L'Express*: the constraints concerning the major vectors of the international life, closely imbricated and interdependent, include notably the evolution of the oil price or still the constant modification of the relations between East and West as well as within each era of influence. The second group of parameters bases on the evolution of the nuclear science and technology. The third group of parameters corresponds to the French political life, including elections and pressure groups. Finally, the fourth group of parameters is internal to *L'Express*, including its directors or its journalist teams.

Certainly, the study of the evolution of “saying” the nuclear power in France after 1981 should be carried out, in order to see what prevails between the positive and negative aspects, between the arguments and mental images promoting and discrediting its perception, and if so when and why, and thus to understand the current opinion on this sensitive theme. To achieve this goal, either should be chosen the same news magazine if the will is to understand the changes over a long period and if a team of researchers is not devoted to this study, or should be considered a wider range of the French media if appears the necessity to focus on a shorter period or a single

event and of course if a substantial team of researchers can be gathered to that purpose.

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