

# Nuclear Safety and Security in France in the 1970s: A Turning Point for the Media

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**Abstract**—In France, in the main media, the concern about nuclear safety and security has not really appeared before the beginning of the 1970s. The gradual changes in its perception are studied here through the arguments given in the main French news magazines, linked with several parameters. As this represents a considerable amount of copies and thus of information, are selected here the main articles as well as the main “mental images” aiming to persuade the readers and which have led the public awareness to evolve. Indeed, in the 1970s, in France, these evolutions were not made in one day. Indeed, over the period, many articles were still in favor of nuclear power plants and promoted the technological advances that were made in this field. They had to be taken into account. But, gradually, grew up arguments and mental images discrediting the perception of nuclear technology. Among these were the environmental impacts of this industry, as the question of pollution progressively appeared. So, between 1970 and 1979, the language has changed, as the perceptible objectives of the communication, allowing to discern the deepest intentions of the editorial staffs of the French news magazines. This is all these changes that are emphasized here, over a period when the safety and security concern linked to the nuclear technology, to there a field for specialists, has become progressively a social issue seemingly open to all.

**Keywords**—French media discourse, nuclear safety and security, public awareness, persuasion.

## I. INTRODUCTION

IN France, the concern about nuclear safety and security made its real appearance in the main media at the beginning of the 1970s. For a long time, nuclear power plants have been considered as a progress, and thus positive “mental images” were numerous. But, progressively, the media discourse about the technological advances and their concrete implementations in this field has changed, and negative arguments have grown, raising questions about the reality of nuclear safety and security.

The studies led to this day have not really emphasized these changes yet. Veron talked about a single event, the Three Mile Island accident [1]. Many references can be given about generalities on nuclear safety and security, but nothing about the modification of the media discourse, and thus about the evolution of the public awareness. Indeed, the public attitudes towards the nuclear technology must be taken into account as it has consequences on the way the public policy and governance can be managed. And the fact is that the public hold most of its knowledge about it through the media, especially over the period studied here. Obviously, media

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influence is not new: many authors have analyzed it for a long time, showing that media have transformed, enriched and leveled, unified in space and diversified in time the conversations of individuals, even those who do not see them, but who, talking with people attending to them, are forced to follow the rut of their borrowing thoughts [2].

Cornu showed the problem is that journalistic information is not only a way to restore the facts of current events and the opinions of social actors. It offers a vision of reality, and thus it is not innocent of any intention to reveal certain aspects rather than others in order to make it evolve, to change things [3]. In the sensitive field of nuclear safety and security, two joint but unevenly present approaches have thus to be taken into account: on the one hand the facts, on the other hand the interpretation which is made of them. The bald facts, when they are known, constitute the least common approach. The interpretation which is made of them 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 [4], to direct the thoughts, leading to a “social perception” [5].

In order to perceive the evolution of the concern about nuclear safety and security in France in the 1970s, a thoughtful choice had to be made. Indeed, for a single researcher, it was not possible to study all the media. As for the audiovisual media, the processing of these resources seemed unthinkable otherwise than by “polls” so much the mass was wide. As for the press, the 1970s were in France years of difficulties for national dailies, whose circulation felt regularly as well as the number of titles, mainly because of the growing of the seemingly free audiovisual media. Indeed, this worrying situation led to deep reactions. In the name of pluralism of information and of the role played by the press in the molding of citizens, journalists and press barons called national assistance for help, although this help had already been important, with the numerous direct and indirect aids and the particular legal measures [6]. On the other hand, in the field of information, the real retort to audiovisual media was brought then by news magazines.

In France, in the 1970s, news magazines were a new form of press and journalism that distinguished themselves from national dailies by several advantages. Responding in part to an industrial logic, they have adopted from their creation in France a marketing approach to there almost unknown in the French press [7]. Besides, they offered a different method of information processing. Their periodicity gave them a slower

rhythm, allowing them to approach the news with some distance, and the ability and the means to launch consequent inquiries and studies. They opened to concerns often neglected by the others, and the visual was more important: texts and images crossed and supported each other, both on the editorial plan and on the advertising plan. At last, it must be added that the French style news magazines have quickly occupied a significant place in the public debate and in the ideological struggles of the period in France, tending to supplant on this point national dailies, often more withdrawn [8].

Of course, here again, the all French news magazines could not be taken into account. Those which were interesting were those which had a wide circulation and which contributed to make the concern about nuclear safety and security evolve, in other words were interesting the news magazines which had the main impact on the public. They were three: *L'Express*, *Le Nouvel Observateur* and *Le Point*. As one of their columnists recognized it, could be found, in their tables of contents, not only almost all the great names of literature, politics, economy, science, philosophy, but also the successive waves of journalist teams, directors, and chief editors who then went elsewhere to create new weeklies, new dailies, or to enrich those which already existed, or still to bring their talents to radio and television stations. Their influence was real. Of course, among the main debate topics that they had contributed to lead in the 1970s, could be found the nuclear question. Some of its demonstrations were obvious: it was the press campaigns, which were carefully orchestrated. Others were more difficult to apprehend at first glance, and required more attention, as it is explained in the succinct description of the basic methodologies used to achieve this study.

## II. BASIC METHODOLOGIES

The study of the three main French news magazines, those which had the main impact on their readers, thus on the public, allow to understand the gradual changes in the perception of nuclear safety and security in the 1970s in France.

The most important was *L'Express*. It was founded in 1953 by Jean-Jacques Servan-Schreiber and Françoise Giroud. It was transformed in 1964 on the model of the American news magazines, becoming since then the first French weekly, with about 700,000 copies a week in the 1970s, which was important in France. Its global political positioning placed it in the Center. *Le Nouvel Observateur* was in second position, with about 370,000 copies a week in the 1970s. It was created in 1950 by several former Resistance fighters and was remodeled later in the image of *L'Express*. It was appreciably more to the left than the latter. At last, *Le Point*, appreciably more to the right, was established in 1972 by a team coming from *L'Express* and sold about 340,000 copies a week in the 1970s.

To build the analysis of their discourse about nuclear safety and security, two options could be considered: either were kept only the major occurrences, or were taken into account the whole articles, mentions, allusions. The first possibility led to retain only the articles explicitly dedicated to this theme, referenced as such in the table of contents of the 1,560 copies

of the three chosen weeklies over ten years. They were not numerous, and this choice brought to neglect the set of the other occurrences, which are nevertheless extremely important to understand how took place – or was made – the evolution of the thought in this specific field. Because everything contributes to inform, to mold, to direct. Therefore, the second option was chosen. It led to a careful reading of all the copies, in order to retain all the things concerning nuclear safety and security, from the articles explicitly dedicated to this theme to the allusions made within any article, including the direct or allusive drawings, photographs and advertisements. These initial locations led to a set of data to statistical use. The precise “volume” of the occurrences allowed an interesting initial analysis as for the frequency, the importance in absolute and relative values, the links with the major events of the period. On the other hand, the computer research by keyword was rejected, because the variety of the terms used to describe the concern about nuclear safety and security, 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 currently able to replace the reflective reading taking into account the co-occurrences. However, the multicriteria data processing has here its place: developing in the future the computerization of the collected data will allow to leave a “data bank” stemming from surveys and observations, as well as a mathematical modeling of this type of approach. Considering these located data in these three news magazines, it must be said that there is no specificity of one of them in the processing of the concern about nuclear safety and security. Beyond the obvious evolution of the consideration given to this theme during the period, it is always present, in similar proportions, in these three news magazines (Fig. 1). The corpus has the specificity to be spread over time, thereby to be disseminated, thus having apparently a moderate impact, but also to be omnipresent, thus having to be analyzed in its semantic evolutions, in its mental images, reported to this duration. Indeed, these three news magazines are not sensational weeklies, but tools to inform the public, to model the opinion too. So, there is no more specificity of one of them in the processing of other important issues concerning the French society in the period, as for instance education: if this last theme is obviously better off that the concern about nuclear safety and security, results demonstrate that there is no crucial disproportion.

At last, the located data were analyzed through the successive modulations of the vocabulary, in connection with the analysis of the “actors”, from “simple” reporters to economic decision makers for instance. 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 evolutions of nuclear technology, the reorientations of the French domestic policy, the growth of new political

movements, but also in connection with the major international events. Indeed, this represented a considerable amount of copies and thus of information. Therefore, are only kept, for this paper, some of the main articles about nuclear safety and security, 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.

| Year                          | Nuclear safety and security |                              |                 |
|-------------------------------|-----------------------------|------------------------------|-----------------|
|                               | <i>L'Express</i>            | <i>Le Nouvel Observateur</i> | <i>Le Point</i> |
| 1970                          | 9 occ.                      | 7 occ.                       | -               |
| 1971                          | 15 occ.                     | 14 occ.                      | -               |
| 1972                          | 9 occ.                      | 10 occ.                      | 7 occ.          |
| 1973                          | 6 occ.                      | 5 occ.                       | 3 occ.          |
| 1974                          | 50 occ.                     | 45 occ.                      | 41 occ.         |
| 1975                          | 40 occ.                     | 33 occ.                      | 35 occ.         |
| 1976                          | 20 occ.                     | 19 occ.                      | 15 occ.         |
| 1977                          | 23 occ.                     | 25 occ.                      | 20 occ.         |
| 1978                          | 6 occ.                      | 15 occ.                      | 3 occ.          |
| 1979                          | 27 occ.                     | 29 occ.                      | 21 occ.         |
| Civilian use of nuclear power |                             |                              |                 |
|                               | <i>L'Express</i>            | <i>Le Nouvel Observateur</i> | <i>Le Point</i> |
| 1970                          | 55 occ.                     | 51 occ.                      | -               |
| 1971                          | 57 occ.                     | 58 occ.                      | -               |
| 1972                          | 51 occ.                     | 54 occ.                      | 48 occ.         |
| 1973                          | 60 occ.                     | 57 occ.                      | 55 occ.         |
| 1974                          | 105 occ.                    | 100 occ.                     | 98 occ.         |
| 1975                          | 89 occ.                     | 82 occ.                      | 84 occ.         |
| 1976                          | 54 occ.                     | 53 occ.                      | 51 occ.         |
| 1977                          | 88 occ.                     | 93 occ.                      | 80 occ.         |
| 1978                          | 72 occ.                     | 78 occ.                      | 65 occ.         |
| 1979                          | 89 occ.                     | 93 occ.                      | 81 occ.         |
| % security in regard civilian |                             |                              |                 |
|                               | <i>L'Express</i>            | <i>Le Nouvel Observateur</i> | <i>Le Point</i> |
| 1970                          | 16.36%                      | 13.73%                       | -               |
| 1971                          | 26.32%                      | 24.14%                       | -               |
| 1972                          | 17.65%                      | 18.52%                       | 14.58%          |
| 1973                          | 10.00%                      | 8.77%                        | 5.45%           |
| 1974                          | 47.61%                      | 45.00%                       | 41.84%          |
| 1975                          | 44.94%                      | 40.24%                       | 41.67%          |
| 1976                          | 37.04%                      | 35.85%                       | 29.41%          |
| 1977                          | 26.14%                      | 26.88%                       | 25.00%          |
| 1978                          | 8.33%                       | 19.23%                       | 4.62%           |
| 1979                          | 30.34%                      | 31.18%                       | 25.93%          |

Fig. 1 Comparison of the number of occurrences concerning the nuclear safety and security question and the civilian use of nuclear power in the three news magazines

### III. MAJOR FINDINGS OF THE STUDY

Indeed, in the 1970s, in France, the changes in the discourse and perception of nuclear safety and security were not made in one day. Over the period, there were still many articles in favor of nuclear power plants and in favor of the technological advances that were made in this field, even though, gradually, grew up arguments and mental images discrediting the perception of nuclear technology, making thus the public awareness to evolve.

At the beginning of the 1970s, the arguments and mental images promoting the perception of nuclear technology still dominated (Fig. 2). With the atom, everything seemed to be still possible. With the atom, everything seemed to be cheaper, especially as the oil prices began to rise. However, environmental concern, appeared at the end of 1969, began then to grow. Among the numerous reservations brought to the environmental management, as the air and water pollution or the water and fossil fuels consumption considered as excessive, the concern about nuclear safety and security

appeared. Gradually, the theme of pollution expanded, at the same time France definitely gave up its technology of gas-cooled graphite moderated reactors. The first pressurized water reactor that had to equip the Fessenheim nuclear power plant led to controversies: in addition to the dissatisfaction of the riparian countries was said that the water of the river would be warmed by some degrees, with numerous consequences for the ecological balance. Behind this theme, the real concern appeared: nuclear power plants were not yet such a bad thing, providing that they were built “not in my backyard”. As if a new argument was then to be found, the notion of risks surrounding this technology began to be brought up: that of the waste storage, that of the potential diversions of fissile materials, that of the accidents which could affect nuclear power plants.



Fig. 2 “Responsible industrialists” [9]

The concern about nuclear safety and security began to be a political question in 1974. With the early presidential elections of the spring, environmental concern entered in the French campaign, with a specific candidate, René Dumont (Fig. 3). If this entrance could be seen at first glance as a failure, as this candidate appeared as a soft oddball, however this political campaign revived and updated the concepts of risk and squandering, and beyond this the demand of a debate on the French energy policy, as too much secret was denounced. The doubt about the necessity of nuclear power plants thus raised despite the oil crisis and thus despite many articles still in favor of nuclear technology. As for the theme of pollution, after being linked to pesticides, the nuclear industry was then connected with the Minamata industrial mercury poisoning and the hydrocarbons residues spread out on the French coast after the regular tank cleaning of ships. A comparison was even made between the dangers of the future breeder reactors and those surrounding the Japanese nuclear power ship *Mutsu*, with then the explicit use of the words “safety” and “security”, while it appeared that France could implement those both technologies. At last, the nuclear risk became stronger with the assertion that many U.S. nuclear power plants had to be shut down because, as *Mutsu*, they leaked, a concern all the more important that France began then to implement the same US technology.



Fig. 3 René Dumont, a 1974 French presidential candidate taking into account environmental concern [10]

The anxiety generated thus by many articles was at the end of 1974 translated by a press campaign led by *L'Express* against nuclear energy, as the owner of this news magazine, Jean-Jacques Servan-Schreiber, tried to use this theme to recover some of the political influence he had lost after being evicted from the new French government for his strong opposition to the next French nuclear tests. Quickly, the other news magazines, as the all French press, followed the movement. In addition to the previous arguments and mental images already used, the limits to the growth were put into question as grew the will to consider other energy sources and to reduce the energy consumption in general, thus to stop the development of new nuclear power plants. Indeed, the nuclear risk could now lead to death, as the danger of the poisoning and carcinogenic plutonium linked to the future breeder reactors was more put forward, as well as the potential threat of terrorism, especially as was asserted that the current nuclear power plants were less well watched than banks (Fig. 4) or that it did not seem to be more difficult to hijack a truck transporting nuclear waste than a plane. Thus, the nuclear risk was presented as now leading to panic in France, at last to a sudden awareness, with for result the necessity to consult from now the local population before any new implementation.



Fig. 4 Imaginary scenario of three terrorists stealing plutonium in a nuclear power plant, after having knocked out the only night watchman [11]

As the media debate increased steadily, it led to a political debate. Members of the French government replied, as well as the great leaders of the nuclear sector, redressing the balance. On the other hand, the large surveys and opinion polls launched for the occasion (Fig. 5) did not give exactly the expected results: certainly fears expressed about safety, wastes, environmental damages, but the people polled – with an exception for the young – 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. Moreover, they were still confident in the official spokesmen, although they regretted a lack of information. Certainly, the debate had gone too far to stop there: a parliamentary debate was organized in May 1975. But, here again, its conclusions did not give the expected results: in view of the extent of the energy crisis, no speaker of any political party rejected then the civilian use of nuclear power. Certainly, there was unanimity on the necessity to control the development of nuclear power plants, and that this control had to be independent from the government. At last, if some opinions diverged on the questions of risks and lack of information, that was all: what gathered the political parties was then much more important than what separated them.



Fig. 5 Opinion poll launched by *L'Express* and results [12]

As a result, for more than one year, the way the nuclear question was presented remained globally favorable, as the three news magazines, and first of all as *L'Express*, satisfied to have induced a debate, returned then to their usual rhythm and methods of treatment of the subject. Moreover, the concern about nuclear safety and security had then no reason to be, as the opinion of the local population and of their representatives was taken into account, as well as the one of environmentalists, leading for example to the landscaped integration of some nuclear power plants. Consequently, in addition to the articles, the number of advertisements in favor of nuclear power plants grew (Fig. 6). However, soon, the negative aspects of this technology came back. Indeed, the mental image of risk became then omnipresent, to the point that the association “nuclear risk” constituted a pleonasm in

the majority of the articles, thus in the minds, especially for the young. Doubts and questionings were distilled again about the security question as the Seveso accident on July, 1976, increased the assimilation of the chemical and nuclear industries. Moreover, this security question was gradually reinforced as, whatever the progress of technology, uncertainties appeared on the role of men in nuclear accidents. The result was a renewed attention given to environmentalists, especially as the 1978 parliamentary elections seemed to lead to a victory of left-wing parties in France.

as posterior to the accident and realistic (Fig. 7). To the threat that France could now undergo the same kind of accident than the one that happened in the USA, to the threat that a total meltdown could occur, causing the core to sink lethally into the earth, to the statement of all the nuclear accidents arisen in the past all over the world, being emphasized here for the first time, was then also added the threat of the effects of radiation, indeed only those related to the nuclear industry. However, despite the spread of this concept of threat, the news magazines noticed that the nuclear danger seemed little to worry the population living near a nuclear power plant in France, especially as it still brought locally employment and money, and as the second energy crisis opened then.

#### IV. CONCLUSION

Hence, if the concern about nuclear safety and security appeared in France in the 1970s, over this period the media discourse has been ambivalent, mixing positive and negative arguments and mental images. If this question raised with the will to make it a political question, the editorial staffs of the French news magazines apparently failed, as it appeared that they were not followed by any political party which had parliamentary representatives, that the political credit granted to environmentalists was very low, and that the people were generally in favor of the nuclear technology. In France, if the presence of nuclear power plants was then an acquired fact, if their dangerousness appeared as less important than their utility, however a glimmer of hope seemed quickly to come from the United States after the Three Mile Island accident, as this one led to an important protest of the nuclear programs, exploited by a fringe of the political opposition to President Carter, with the proximity of the presidential election. Hence, the French news magazines could go on, could continue either to play with positive and negative arguments and mental images or to increase the negative ones or the positive ones, when necessary.

Indeed, persuading people takes time. Indeed, must be taken into account the impacts of the events, either national or international, as the ones of the reorientations of the French domestic policy, partly because of the changes of the political tendencies governing the country. Indeed, must be taken into account also the impacts of the growth or the decline of some of these political movements, as the impacts concerning the evolutions of the nuclear technology. But, must not be forgotten at last to take into account the news magazines directors, chief editors and journalist teams that work to inform and direct the thought of their readers, and that indeed are not still the same, leading to a different editorial policy or not. Hence, the study of the evolution of the concern about nuclear safety and security in France should be carried out after the 1970s, in order to see what prevails between the positive and negative aspects and if so when, either in the three main French news magazines chosen here if the will is to understand the changes over a long period, or in a wider range of the French media if appears the necessity to focus on a shorter period or a single event.

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Fig. 6 Advertisement about nuclear safety and security [13]

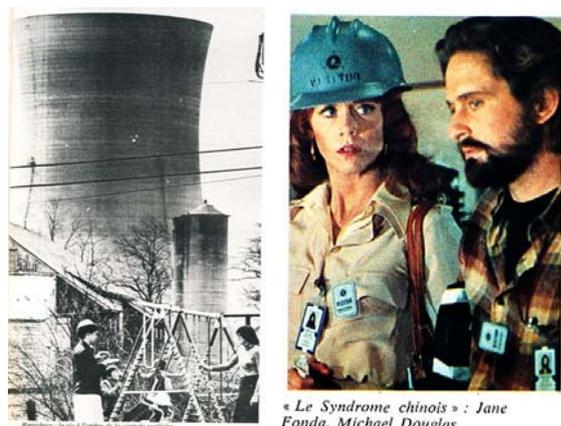


Fig. 7 Living without fear near a nuclear power plant as Three Mile Island [14]

Despite the publicity given to the “green crusade”, to the demonstrations that environmentalists organized against nuclear power plants, sometimes matched by violence, not only the question did not enter in the campaign but environmentalists and the other left-wing parties failed then to take power. As a consequence, the concern about nuclear safety and security disappeared for many months, before reappearing with the Three Mile Island accident on March, 1979, qualified then as a nuclear nightmare. Indeed, this accident was important, as was the will to direct once again the thought of the readers, with the use of Biblical references or still with the link made with James Bridge’s movie, *The China Syndrome*, brought out a few days before but described

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