

**Crisis management exercise**Françoise Manderscheid<sup>1</sup>

ENPC

Emmanuel Teboul<sup>2</sup>

SNCF Mobilités

**Understanding crisis stakes and adjustments of actors' cooperation thanks to a game.**

This game is specific because it is part of a training program provided by an engineering school, l'Ecole nationale des Ponts et chaussées within the scope of its Advanced Master in Railway Engineering and Urban Transport Systems. This educational program was created by several Railway operators (SNCF and RATP) and by the Railway industry to bring an answer to the shortage of Railway engineers with engineering system approach.

While tragic events from the past 18 months has highlighted the crucial need met by forces and law and order, and civil security to prepare for crisis management, it has been over twenty years the Railway and Public transports operators have been working on crisis management<sup>3</sup>. From the Advanced Master's very beginning in 2008, it was defined that operation and security modules will be associated to a one week training sequence specifically dedicated to crisis management, like the SNCF managers training that was created at the same time as redesigning the SNCF crisis plan and, at the same time, as the creation of the Operation National Center (and regional centers), a modern version of the "PCC" Transport that was designed after the railway accidents from the eighties.

The "crisis day" we are going to introduce is a key part of a one week training module exclusively dedicated to crisis management. It is about the derailment of a freight train transporting propane wagons.

The goal of this exercise is, besides the practical application of theoretical knowledge about Railway operation and traffic disruption operational management, to train students to improve their individual and group behavioral skills during stressful situations and to cope with media hype. Another objective is to understand how to take on passengers and customers in case of major crisis (called "Corporate crisis"). Most of the participants from the Advanced Master are engineers who are more used to developing technological answers rather than management skills. The "management crisis" module is, in that way, one of the only ones specifically dedicated to human factor<sup>4</sup>. At last, this exercise also illustrates the underlying complexity of issues related to operational management, especially in case of traffic disruption. It also illustrates the limits of the hypothetical-deductive approach, massively and usually used in French Higher Academic Education.

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<sup>1</sup> Head of the Advanced Master in Railway Engineering and Urban Transport Systems, Ecole Nationale des Ponts et Chaussées – Associate professor at Ecole nationale des ponts et chaussées.

<sup>2</sup> Head of the J, L and N lines Operation Centre, Transilien, SNCF Mobilités and Head of the « Crisis management and passengers information » module, Railway Advanced Master since 2009.

<sup>3</sup> Cf Works from Patrick Lagadec who published several important books about crisis management in France - Crisis Management, 1991 ; Learning how to manage crisis, 1993 ;

<sup>4</sup> Frédéric Vanderhaegen (from the University of Valenciennes) gives a 3-hour training session during the Safety Module of Walter Schön, about human factor.

## The crisis management module educational progression

This module takes place at the end of the year whereas most of safety subjects are taught at the beginning of the program. This first introductory module to safety (Walter Schön, UTC professor) includes a study of safety management given by Hubert Blanc, the Director of EPSF reference frame and of several training sessions about safety definitions and demonstrations.<sup>5</sup>

### Up Stream training sessions

1. A first sequence is based on the viewing of the “Duck & Cover” episode from the American “West Wing” (“À la maison blanche” in French) series about a major crisis that occurs in a nuclear power station in California where one reactor leak presaged the Fukushima accident. The President of the United States and his counsellors are handling the crisis, ordering population evacuation with the help of nuclear experts, in a pre-electoral context that makes communications highly sensitive.

This film offers to the students the opportunity to measure, one event after the other, the very intense temporal succession of events and the large diversity of the actors who are implied in the crisis. They are asked, after the episode screening, to recall the events chronology, to identify the decisions, to qualify them (as right or wrong), to understand the goals of the different groups of actors and their respective stakes.

As written by Salem Brahimi, in an article about crisis management in the movie industry, “the West Wing series is very close to the crisis management time reality. It also glorifies its characters with great dialogues and succeeds in inspiring a sense of the crisis complexity thanks to a character that keeps on reminding us, that in crisis time, nothing is really clear”. It turns out to be a very disturbing experience for our students, that they will live again during the crisis exercise, thanks to a very realistic setup!

2. Catherine Piednoël, a specialised journalist from the Korallion office, teaches a course about crisis communication. She teaches students how to design a press release, organise report meetings, prepare “talking points” and to be able to hold unprepared press conferences / interviews. She also teaches the basic rules of crisis management communications: trust – respect paid to the victims – empathy – consistency – partnership logic – thanks – investigations, etc. She also encourages them to use action verbs, to ban “jargon” from their communications and to act according to the following rule: keep it short, concise, clear and concrete!
3. Pascale Rieu, Head of the Exercises and best practices Department at the Home Office Civil Safety Department, introduces the measures of the French public crisis process (called ORSEC) which main goal is to prepare in advance, a solid and well established organization to urgently answer to crisis events.
4. One of the specificity of the Advanced Master program is to use a comparative approach; a 3-hour sequence is dedicated to the presentation of processes implemented by the different companies, based on the double frame of reference of RATP and SNCF. This sequence is taught by Emmanuel Teboul and Pascal Halko.
5. The final sequence is about lessons that have been learnt from the 19 December 2009 Eurotunnel<sup>6</sup> crisis. Several Eurostars, transporting hundreds of passengers were blocked under the tunnel, following serious material damage caused by snow. This REX sequence focuses on the “Disney train” that gathered a lot of difficulties (many very young children

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<sup>5</sup> In addition to the teaching module dedicated to safety (about twenty hours), the safety theme is addressed on several occasions with multiple angles and in the two thirds of the Advanced Master modules: operation safety, safety demonstration, RAMS, REX, command control signaling, approval and certification, etc). On the opposite, the security is not, at the moment, much developed.

<sup>6</sup> Taught by Claude Gressier from the “Commissariat Général au Développement Durable”

coming back from their journey to Disney, English travellers and French salesmen following a British strike, the proximity with Christmas time with a number of suitcases transporting presents which the travellers didn't want to part with).

### **The Educational process**

A few words about these 5-hour exercises required means: 3 classrooms, maps from the sites (station, urban area, region and national), a team of supervisors. The exercise requires an upstream role distribution to the students, depending on their profile, knowledge, etc. A special attention is paid to the choice of the technical Director and Strategy Director. Students are asked to bear nametags that include their function, and classroom. The students are given the telephone numbers from the game different actors.

**Equipment:** usually, that type of training program, aimed at professionals, takes place within the train operator offices which are usually used and have the appropriate set up. On the contrary nothing similar exists at Ecole des Ponts ParisTech. 3 adjacent computer rooms are used. Those 3 rooms are fitted with over twenty phones and an Internet access (students are not allowed to use their cell phones). All rooms are equipped with large white boards and several paperboards.

**The exercise supervision: this 5-hour exercise requires a consistent supervision. The module manager is a Crisis Management expert who took part in the training of a significant number of SNCF managers.**

In the exercise room, over fifteen roles are being simulated, by at least 6 supervisors: representatives of local councilors and civil security, a journalist, **several actors from the traffic operational center - the Infra spare dispatchers and maintainers, traction, rails, etc, the trains conductors operating in the affected zone**, the Dijon station travellers area, the SNCF directorship, the Minister of Department for Transport, etc.

**The exercise organization** is based on the relation between 3 groups of actors divided into 3 rooms which are only in contact by phone or interposed media (fax, e-mails, press dispatch, tweets, etc.):

1. The technical crisis room with the technical director and the whole activities (TER: the French regional train, Freight, Travel, the traffic and spare dispatchers and maintainers teams and the session secretary).
2. The strategy room (also called the Communications room or Corporate room) with the crisis Director – Security and safety manager – External relations, Communications – Communications officer, etc.
3. The pedagogical supervision room with the pedagogical Director and the supervisors. The crisis leader and manager is a local incident manager and the public security representative is also in the same room.

**The storyline: a freight train with 17 Total cars transporting propanol gas derails in the Dijon<sup>7</sup> station at 9.47 am.**

Very quickly, the local incident correspondent is informed that a major incident had occurred. He receives the information from the exercise director. With no more information, he is asked to go to the site (located in the supervision room). Over ten trains are affected. The technical room Director is also informed of the incident by the COGC of Dijon.

Students (except the CIL) are divided into the two other rooms. Starting from that point, a series of information is sent to the CIL or to the Operational Center by the educational supervisors successively acting as the stopped train conductors, the traffic operation center, etc.

At 11.40 am, a gas leak is detected in one of cars' damaged tank. It has an important impact on the organization with the implementation, by firemen, of a security area...

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<sup>7</sup> Until 2012, the scenario took place in Massy Palaiseau but students had some troubles with the Railway site complexity (RER B et C, TGV, Fret, RATP et SNCF), especially in this limited attributed time.

Trains are no more on the move, tramways are stopped. Shortly after, the prefect who directs the rescue operations activates the French public crisis process (ORSEC plan). The prime minister goes to the site, along with the region prefect.

The exercise ends up with a press conference – 5 hours after it started. A one-hour debriefing session ends up taking the whole day.

**Screening of the film about the 2012 exercise (the exercise was located from 2008 to 2012 in the Massy Palaiseau Station) 3 mn 47**

This exercise makes the students approach 3 sensitive aspects of operational exploitation:

1. The first is the management of information as the supervisors intentionally send a massive amount of information to students (phone calls and press dispatches). As the two rooms can only communicate by telephone, the relationship with the crisis room which has a crucial need of practical information to inform and broadcast some news starts being more and more difficult. Information goes through the technical room, the only room in contact with the place of the accident – itself too busy to manage **the avalanche of information** received from the supervision room and the very numerous operational decisions to be taken in a very short time (estimating the explosion risk, making an inventory of affected trains and passengers, stopping (or not) the traffic, evacuating passengers, finding substitution buses, conceiving a transport map, etc).  
As the students receive instructions asking them to achieve assessment points to keep a control on the crisis management and work in team, the relationship between the 2 rooms sometimes tend to be very tense, and as a consequence, lead to a temporary interruption of the exercise.
2. The second aspect is about the **caring for passengers** whose expectations are very diverse. For example, the care for an 88 year old woman who broke her collar bone in the Beaune station; a 8 month and a half pregnant woman in a stationary TER (French regional train)... The Principal Private Secretary is worried because several classes of children that are travelling as part of their end of the year study trip and who are expected by their parents, etc. In the second part of the exercise, the passengers are going down on the rails.
3. The third aspect is related to **the design of a transport map** (for D+1), for the Bourgogne TER as lots of passengers are students who are taking their A-level tests. Sometimes the exercise students were far too focused on designing solutions to empty the gas tank or on the search of a lifting machine or substitution buses. As a consequence the design of the transport map is sometimes forgotten or the students are not successful in adopting a common and constructive approach.

### Main educational benefits

Before introducing the content, I would like to share a few fragments of conversations collected during post-exercise debriefing sessions and, thereby, give the floor to the students from 2016 and 2014 proms.

- “The incident’s local correspondent appears to be much on his own on the field. As the time goes by, he keeps receiving more and more orders: he is violently criticized; he gets a rocket!
- The fact that there are no relations between the technical room and the Communications room is very disturbing. As a consequence, it was really difficult for us to design a common strategy.
- I had no global and clear information about the whole train position and yet, I had to make decisions to design a transport map.
- During the crisis exercise, we learn more about ourselves rather than in any other ten hours from the course.
- At the beginning, the crisis can be managed but we are quickly facing a loss of control – it is a real stress resistance test.
- We have no up to date directories, some of the phone numbers were incorrect!

- I've learnt that you always need to carry a pencil and a piece of paper with you in order to be able to write down some information when you are visiting the site"

### What do students learn concerning the professional aspects of the crisis<sup>8</sup>?

1. **When making a decision during the crisis, there is no absolute rationality<sup>9</sup>.** You need a crisis director who honors his commitments. The crisis director often has to choose, with his team, between two bad solutions based on incomplete information. He has to identify risks, think, and implement decisions and its consequences (the "So What")<sup>10</sup>. It is not only about applying standards and reference documents. It is also about how you need to be able to make a decision and then applying it after adopting it. It sometimes appears to be harder than making the decision; changing a transport map during the crisis exercise can be disastrous, especially for travellers. It is completely necessary to have 2 scenarios – to design both A and B plans – and to work on both plans simultaneously (as an example, the diesel locomotive needed for the derailment lifting finally appears to be out of order).
2. **The state of doubt:** when a crisis occurs we never have the whole information about the situation: you have to deal with the doubt and the lack of information. For example we teach students, even if it is very difficult, to say to the journalists that "we don't have the information you are asking for".
3. **Adopting a constantly questioning approach** is essential. You need to keep rephrasing raw information given by the team which is on the field. During a crisis, you also need to deal with the information deformation: to keep reconsidering the events timing and make the person who gives the information (in particular on the phone) repeat it several times.
4. **Anticipation.** One of the main challenges of crisis management is about time management. Indeed, "crisis management is about to be in advance on the events"<sup>11</sup>. We activate the crisis management mode when we decide to take over the events: it's not when you are in a state of panic. You should not be influenced in your decision because of what happened or what is still happening. Crisis management is also about anticipating and heading in the right direction. It is also particularly true with the medias: it is very important to broadcast information quickly and to get ahead of medias: the first tweets in the exercise are published 10 min after the incident.
5. **A school of precision:** with crisis management, you need to make a precise fact chronology and to learn how to manage an "occurrence book" to share information with the different stakeholders. It is something new for students.
6. **Giving priority to organizational robustness rather than to technology.** There is no "deus ex machina" that can handle a complex crisis situation. Technology (including new media) is nothing but a tool helping in the decision making process. SNCF and RATP both developed solid transport map that the whole actors (from the crisis director to the customer service agents) know perfectly.<sup>12</sup>

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<sup>8</sup> These notes were taken during the 2016 debriefing with students.

<sup>9</sup> Cf. J G March and Simon Herbert who prefer actors' limited rationality to absolute rationality which is illusory, especially in an uncertain environment.

<sup>10</sup> You even sometimes need to go against it, a controversial aspect but, also, both of the authors shared belief. The first author, who is qualified in organization sociology, teaches that the work-to-rule is nothing more but the rules applications that can lead to a total standstill of the organization. The second, as a well Railway crisis trained practitioner knows that the crisis director sometimes needs to make decisions in conflict with safety rules, as an example, in order to prevent more accidents from happening.

<sup>11</sup> Notes taken during the Emmanuel Teboul debriefing

<sup>12</sup> We are talking about « on shelves answers »

7. **The stress and pressure.** Human limits are quickly overstepped; it's impossible to manage two crises at the same time. Most of the times clash happen: crises are often violent! As described by Salem Brahami, "crisis is first and foremost a share of emotions".
8. **A few crisis communications rules:** never lie when you are delivering information to passengers, never blame somebody else for your own "crimes", never justify yourself.
9. **The actors game complexity:** divergent goals are incompatible: you need to deal with different interests: the national one (the CNO) versus the regional one (la Bourgogne): the one of the infrastructure manager (restoring rails so that traffic starts again) and the one from the Railway company (who is in charge of the passengers). As an example, one of the academic supervisors playing the role of the train conductor declines to maintain his shift and exercises his right to take evasive action even if hundreds of passengers are still being blocked.

### Main educational benefits

Education specialists have identified, a long time ago, game-based learning as one of the most efficient way of learning. It is also a relevant way to gain knowledge in safety management during crisis situations. Thanks to the simulation method, this day offers a real educational interest; it makes the student train their behavioural knowledge, especially in terms of communications, decision-making and coordination.

1. If we refer to the CEFES Montreal University article: the crisis exercise as it is being used at Ecole des Ponts ParisTech is clearly a simulation and not only a simple role playing game.

Simulation can be defined as "a replication of a situation as a simplified model but realistic one close" (Chamberland, Lavoie and Marquis, 2000, p. 81). This educational process aims at reproducing, inside of the classroom, a situation that could take place in real life in an objective way and that the student could be faced with... In a few words, during a simulation, the students will play their own role by throwing themselves in a professional realistic situation. On the contrary, in a role play set up, they will be playing a role or a character.

The exercise was designed to be as realistic as possible. The scenario is likely to happen in real life<sup>13</sup>. Moreover, the exercise starts at 10 am and is stopped at 3 pm; there is no lunch break and the students do not know these conditions before the game begins... They neither know the place, nor the incident before the exercise begins.

2. That educational process is time-consuming and requires a specific supervision as described earlier, and appropriate financial means as well (apart from the study trip, this module is one of the most costly of the Advanced Master). "The available time is an important condition. Most of the times, the teacher goes through the 3 phases (preparation, on going and feedback) in a same session. That choice implies to only have a limited number of goals and requires a good supervision".
3. Philippe Meirieu<sup>14</sup> underlines "when you're making the students work together in a same team, we are often faced with a work division problem... Work is divided between the students, including very diverse assignments: designers, subordinate, unemployed and as a consequence, they do not learn much".

In the crisis management exercise, thanks to an upstream (and also arbitrary) role repartition made by the academic supervisors and to the importance given to the collective production, no student is being left with no work". The drawback lies in the fact that the student group cannot be composed of over twenty persons to prevent having students with no roles and as a consequence nothing to achieve.

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<sup>13</sup> Unfortunately, the Viareggio (in Italy) accident from June 2009, and the Mégantic Lake (in Québec) from July 2013 reveal that this scenario appears to be likely to happen in real life.

<sup>14</sup> MEIRIEU, Philippe, Sciences Humaines.

4. At last, one of the basic teaching premises from this exercise is linked to the strong belief that students will gain more knowledge if they experience a destabilising position<sup>15</sup>. They are troubled because of their student position, because of the fact that they need to apply their teacher knowledge during the exercise. They are also feeling uncomfortable because of the (already experienced or yet to come) engineer position they are used to (applying, after analysing a given problem, process, corrective actions in compliance with the reference frame or other standard framework).

During this exercise, the students are not asked to apply the actions listed within the SNCF, RATP or the French public crisis process (ORSEC) documents of reference (which are presented at the beginning of the module): they are requested to « make up » something, instead of simply applying something... That implies good adaptation skills (especially in the context of a first ever situation, which is the best definition of a crisis), an important personal commitment and to take collective decisions in a very stressful context, etc.

As a conclusion about the educational framework of this exercise, we can say that it completely achieves its goal of « disturbing knowledge » that enables students to learn, after having unlearned<sup>16</sup>.

## Conclusion

On the opposite of the safety bureaucratic culture, we have designed a learning process about crisis management that intends to make the students develop their know-hows and collective intelligent far over the limits of the standards and process applications. Indeed, we believe that it's the "situation intelligence" that is key in the crisis solving process (crisis that are by definition, always new and unseen before). Regarding crisis management, choices have to be made with a perfect knowledge of the situation and of the consequences.

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<sup>15</sup> The educationalists talk about "the congruence between educational goals (gaining professional knowledge) and the educational framework". As the crisis is, by definition, disturbing, the exercise must be disturbing for the students.

<sup>16</sup> About the Threshold concept, MEYER JHF and land R (2003) 3threshold concepts and troublesome knowledge: linkages to ways of thinking and practicing.

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TEBOUL, Emmanuel SNCF Mobilités, coordinator of the “crisis and management and passengers information” Advanced Master in Railway Engineering and Urban Transport Systems, since 2010.

PIEDNOEL Catherine, Korallion specialised journalist in crisis management and communications

HALKO, Pascal, RATP Head of Communications

RIEU Pascale; Direction de Sécurité Publique, Ministère de l’intérieur – direction de la Sécurité civile

SCHON, Walter ; course about safety: coordinator of the Safety module (TC 6) and of “signaling, command control” professor at UTC and Advanced Master in Railway Engineering and Urban Transport Systems.

### **Filmography**

**SORKIN Aaron, for the NBC** “Duck & Cover” West Wing season number 7 (broadcast from 1999 to 2006). It tells the story US President and closest collaborators life during their 2 mandates. The series is made in a realistic way and has a hectic rhythm.

Salle de crise = situation room

Porte parole du président : White House press secretary

**ENPC, GUENAIRE, Sandrine**, from the Communications Department and students from the Railway Advanced Master, 2012 Prom « exercice de crise \_ mastère ferroviaire - déraillement d’un train de fret en gare de Massy – Railway exercise June 2012

### **Abstract**

Education specialists have identified, a long time ago, game-based learning as one of the most efficient way of learning. Game-based learning also appears as a proven and particularly adapted learning process for the acquisition of “Crisis Management Safety” qualifications. A complete day of training, based on exercises about crisis management (taking place in some of the school classrooms) has been integrated to the “crisis management” training module (as part of the Railway Engineering and Urban Transport Systems Advanced Master (AM) of Ecole des Ponts ParisTech) since 2009.

This day, using role-playing, is of high educational and performative interest. This pedagogical experience also encourages students to use several « behavioral know how » including communications, decision-making, coordination, based on crisis situation scenarii based on real cases.

More concretely, this exercise is about a train derailment on a site located at the entrance of a medium-sized city. The freight train that is transporting dangerous materials derails at a busy time.

This exercise requires, to approach, as closely as possible real life situations, an important supervision from the pedagogical staff, composed of a set of very divers players with very different kind of backgrounds. The goal of this article is to present the pedagogical set up, the way it has been designed as part of the global AM program, its practical organization and how it is being run.

The hereby article has been designed as an analysis of the pedagogical benefits increasing student’s awareness of underlying complexity of traffic disruption operational management



stakes. It also highlights the limits of a rational approach, hypothetically deductive, usually dominant in the French Higher Academic Education.