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Noémie Frealle, Florian Tena-Chollet, Sophie Sauvagnargues

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# The key role of animation in the execution of crisis management exercises

**FREALLE Noémie**

Mines Alès  
noemie.frealle@mines-ales.fr

**TENA-CHOLLET Florian**

Mines Alès  
florian.tena-chollet@mines-ales.fr

**SAUVAGNARGUES Sophie**

Mines Alès  
sophie.sauvagnargues@mines-ales.fr

## ABSTRACT

The organizers of crisis management exercises want scenario credible and pedagogical from the beginning until the end. For this reason, they call on an animation team that can use different communication channels. The aim of this article is to understand the different types of animation by analyzing the professional experience of the facilitators and the type of casting that can be done. Finally, a definition of four levels of animation is proposed. These levels are associated with different types of messages and rhythm settings. The main objective is to improve the execution of the scenario during a crisis management training.

## Keywords

Crisis, training, animation, facilitator, scenario

## INTRODUCTION: CRISIS MANAGEMENT EXERCISES

### Crisis management exercises goals

Crisis management exercises are tools that enable organizations to practice in managing crisis situations. Trainees can acquire or consolidate reflexes and decision-making processes. The implementation of the exercises is therefore crucial to ensure the proactive management of crisis situations.

Governments are aware of this. So, they have put in place crisis management policies to force organizations to train and practice through simulations. In France, a law in 2004 encourages all the stakeholders, from civilian to general staff, to train with exercises. The hazardous industries have to train at least once a year. In Ireland, since 2002, the civil defense members have to train themselves (Civil Defense Act 2002/2012). The Federal Emergency Management Agency (FEMA) offers a training program throughout the National Incident Management System (NIMS) for all people involved in emergency management. This program was created with the Post-Katrina Emergency Management Reform Act in 2006. The European Flood Directive (2007/60/EC) provides a program of measures wherein is included non-structural measures as training for preparedness for better crisis management.

Although crisis management requirements change, we know that the regulatory obligation is not necessarily a sufficient lever for the implementation of a crisis management policy (Gralepois et al., 2015). As indicated by Gralepois and Douvinet, some factors may hinder the frequent implementation of exercises. These factors include a lack of internal skills to organize training, insufficient financial resources to hire consultants, difficult collaborations with government departments or a lack of a culture of risk that raises the common consciousness to practice to manage emergency situations.

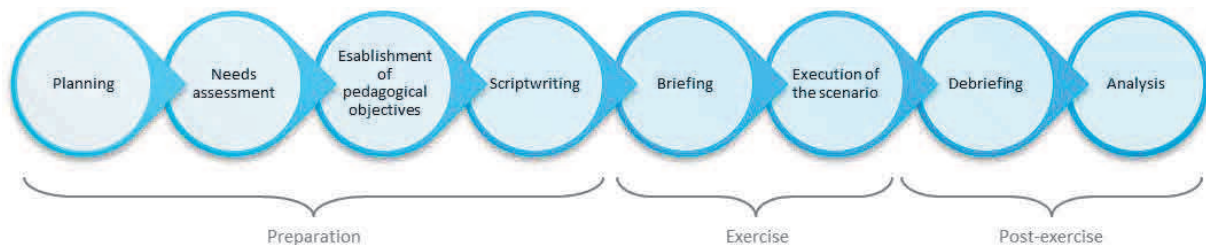
Despite these negative aspects, it is important to note that when crisis management exercises are implemented, they are hailed. Indeed, organizations can derive real benefits from different points of view:

- From an organizational point of view, they allow the actors of crisis management to meet each other, to learn how working together and to organize the information diffusion;
- From a planning point of view, exercises are wonderful tools for detecting defects in crisis management plans (e.g. missing or incorrect information, organization of the plan that can be improved...);
- From a practical point of view, the actors have the opportunity to test the spatial layout of the crisis unit (furniture, placement of players, posting ...).

### The different phases: from preparation to debriefing

Based on different works, it is possible to establish the course of a crisis management exercise (Lapierre, 2016; Morin and Jenvald, 2003; Tena-Chollet, 2012). We can retain 8 steps (figure 1):

1. **Planning:** this phase enables organizer to inform participants if it is necessary and to manage administrative aspects of the preparation of an exercise (Morin et al., 2004).
2. **Needs assessment:** identifying the needs of learners in terms of skills is essential for training to be relevant (Salas et al., 2006).
3. **Establishment of pedagogical objectives:** during the preparation of an exercise, it is necessary to define the pedagogical objectives that correspond to the needs of the learners (Morin et al., 2004). Then, these objectives can be used to produce an observation grid (Lapierre et al., 2015).
4. **The scriptwriting:** a crisis scenario must be drawn up before the exercise. It can be more or less established but it must be credible (Walker et al., 2011). It lays the basis of the exercise: the location, the hazards, the kinetics and the type of the crisis cell that will be simulated (Gaultier-Gaillard et al., 2012). The number of learners and their profiles should also be taken into account during this phase.
5. **The briefing:** it enables to introduce to all the learners the objectives of the exercise, its conventions, the available resources and the evaluation criteria and to remind it to the facilitators (Gaultier-Gaillard et al., 2012).
6. **The execution of the scenario:** it can be carried out in different ways, but there is often an animation team that transmits scenario's messages to the players (Gaultier-Gaillard et al., 2012). To ensure the quality of the training, the execution of the scenario has to maintain the credibility according the decisions made by the training; we call it the harmonious evolution. During the exercise, there may be observation grids filled out by evaluators (Lapierre, 2016) and there may also be a system for tracing the activity of the learners (Carron et al., 2007).
7. **The debriefing:** it is considered as an important step in learners' learning (Lapierre, 2016). It can be technical as well as psychological in the context of crisis management. This dual approach makes it possible to restore the practice of technical or non-technical skills during hot or cold debriefing.
8. **The analysis:** it can be carried out to evaluate the training as a whole and the impact it has had on the learners (Tena-Chollet, 2012) and also to provide a cold analysis of the learner's journey from a pedagogical point of view with advice for the continuation (Salas et al., 2006).



**Figure 1 The 8 steps of a crisis management exercise**

We notice that steps of planning, needs assessment, establishment of pedagogical objectives and scriptwriting constitute the preparation phase of an exercise. Also, the exercise itself begins during the briefing, when the learners already devote all their energy to the smooth running of the training. Then, it is the execution of the scenario that completes the exercise phase. Finally, the last phase is post-exercise and it is formed by debriefing and analysis.

### The organizers of exercise sessions in France

In France, there are different types of trainers. Here, it is question to introduce some of them and not to mention an exhaustive list. The french offer can be distinguished in 3 main areas of offer: the public, the research and the private one.

#### *Training from state organizations*

Within the public offer, there is INHESJ (National Institute of Advanced Studies of the Security and Justice) that is place under the supervision of the Prime Minister. It organizes exercises for the prefectural corps, the police force, firefighters and schools. INHESJ, created in 1989, offers a varied range of training courses in crisis management from different origins: major risks, CBRN (Chemical, biological, radiological and nuclear), political or media. Indeed, INHESJ offers seminars, theoretical lessons and simulation exercises in crisis management. It is important to note that the institute also works on issues of economic security, security and justice.

Another recognized crisis management trainer is the ENSOSP (The French Academy for Fire, Rescue and Civil Protection Officers), under the supervision of the French Minister for Civil Security. Since 1977, ENSOSP has trained professional and voluntary firefighters, as well as civil servants, business executives and French and foreign experts to better understand the operating of fire and rescue. According to article 2 of the founding decree 7<sup>th</sup> June 2004, ENSOSP is also in charge of (i) facilitating the network of firefighter schools, (ii) research, studies, evaluation, foresight, technological monitoring and dissemination of information, and (iii) developing international cooperation in the fields of training and research. In order to meet these objectives, ENSOSP has life-size simulators with technical platforms, a real city, the SIMURge – a simulator of emergency medical emergencies, tactical operational rooms and the reproduction of operational command center. There are also virtual reality simulators for training on risk as chemical, radiological, flood, urban fire, and demonstrators of physicochemical phenomena.

The Center of Valabre is approved by the Ministry of the Interior to provide training in first aid, chemical and radiological hazards, off-road driving, rescue, clearing, emergency rescue and mountain rescue. To fulfill its missions, the center has maneuvering grounds, a diving center, training rooms and simulation software for forest fires.

French prefectures also organize exercises in the frame of ORSEC plans that are emergency plans in case of disaster. So it is the responsibility of the French organization to organize the training schedule. To design crisis management training there is no training organism associated and the prefectures are autonomous.

#### *Training from voluntary organizations*

Among the association dealing with crisis management, there are IRMa (Institute of Major Risks), CYPRES (Information center for the prevention of major risks) and IFFO-RME (French institute for trainers in major risks and protection of the environment). The missions of IRMa and CYPRES are fairly close: on the whole they contribute to the preventive information of the populations on the major risks. They also train, advice and support local decision-makers when planning crisis management. Then they offer an information and legal monitoring. CYPRES also supports industrialists. As for the IFFO-RME, it has an agreement with the Ministry for Sustainable Development, the Ministry of National Education, the General Board for Civil Protection and Crisis Management and the Ministry of Agriculture, Agri-food and Forestry sectors. The objective of IFFOR-ME is to integrate the culture of risk into the culture of the citizen by developing and running a network of trainers on the issue of major risks.

#### *Training from research organizations*

Among the public organization, there are teams of researchers working on improving training in crisis management. The formations constitute part of their protocol of experimentation. Two laboratories offer these formations: Mines Nancy and Mines Alès. Mines Nancy has developed a software called iCrisis<sup>TM</sup>. It supplies a platform that is mainly used to train students. It is used to simulate crisis management with industrial crisis (Gregori et al., 2009). Interactions between crisis units are played and players can train to make decision under pressure and to manage a crisis at a strategic level. The scenario, in iCrisis<sup>TM</sup> is not fixed at the outset: only one frame is defined beforehand during a discussion between facilitators. All the messages are exchanged through the web system (Verdel et al., 2010). This system is good at raising conscience of what is a crisis but in the meantime it does not aim to enhance the individual or collective resilience.

As for mines Alès they have a crisis management training platform that reconstitutes the environment of a crisis

cell to facilitate the immersion of players. A system called Simulcrise was created to support during the scenario processing. It is based on a distributed multitier architecture with the use of a multi-agent system. This system requires the modelling of agents with the definition of the global system and their expected behavior. An animation team acts as an interface between players and agents.

#### *Training from private organizations*

There are many private trainers. The offer is therefore very varied: there can be theoretical courses, exercises on table, simulations or exercises real life. Topics covered include social networks, media, natural hazards, CBRN risks, industrial risks, etc. Some of them have made crisis management training their core business as Argillos or Resiliency while others made it a secondary offer as Predict Service or Mayane.

### **ANIMATION SETTINGS**

In all the training offers cited above, it can be seen that in order to train a crisis management group at strategic scale, it is necessary to call on an animation team to simulate the actors in crisis management outside the crisis unit. The role of the animation team is to run through a crisis scenario to mobilize skills, knowledge and to "force" trainees to make decisions in degraded situations.

Regarding the animation, the organizer of an exercise must clarify several points:

- Specifying the communication channels to be used;
- Defining the number of facilitators;
- Distributing the roles.

Thus, in this part, we shall endeavor to study the different choices which appear for these three points. In our research work we have acquired experience in terms of animation management thanks to the organization and the observation of several crisis management exercises. We have carried out this analytical work thanks to the state of the art and to our experience.








#### **The communication channels used by the facilitators to communicate with the trainees**

In a real crisis situation, crisis managers will have at their disposal different means depending on the state of communication networks to interact with actors outside the crisis unit. The first way is probably the phone, followed closely by the internet mail. In recent years, social networks have also to be considered in addition to the media. The crisis unit will also use fax, in particular as a redundant mean, as it is the case in the French administration. And finally, some information will be available via websites, such as that of Météo France (the French national weather service).

As part of an exercise, each of these means is used in the exercises, more or less. In literature, we find that the use of telephone, email, fax but also facsimiles (a copy or reproduction of a document) is recommended (Boin, 2004). In the INHESJ exercises (Dautun et al., 2011), at the mines Alès (Tena-Chollet et al., 2016), but also in Mines Nancy (Verdel et al., 2010) the phone and email are used. Sometimes a printer is used to simulate the fax and to send facsimiles (Tena-Chollet, 2012). In some exercises, a facilitator can make an oral intervention for trainees in the room. In the latter case, we call the media used the voice.

The aim here is to present the advantages and disadvantages of using each of the media in the animation of a scenario (Table 1). The comparison of the communication channels was carried out following the exercises we have organized and observed.

In a crisis exercise, it is certainly interesting to vary the communication channels to enjoy the benefits of each media. This also makes it possible to overcome the limitations encountered, less to suffer less of disadvantages and to raise awareness among the learners on the different media that can be used a crisis situation.

	Advantages	Disadvantages
 Phone	Media actually used in a crisis unit (immersive) Interaction between actors more interactive and spontaneous. If the system enables it, exchanges can be recorded.	If a facilitator plays several roles, the same voice will be associated with different actors of crisis which creates a bias of credibility. It must be equipped with a number of phones.
 Email	Media actually used in a crisis cell (immersive). Exchanges can easily be recorded and analyzed. Different roles can be assumed by the same facilitator who can take time for reflection to answer.	Exchanging by email can be time-consuming (in terms of writing or reading). Email is less interactive than the phone. It must be equipped with computers and internet.
 Social networks	Media actually used in a crisis cell (immersive).	If trainees use the real social networks, they use key words as “exercise-exercise-exercise” that makes the training less immersive. And if trainees forget to do it, there is danger of confusion between situation of exercise and real situation. The photos will be photos of past events that can be recognized (loss of immersion).
 Medias	Sensitize to media training. An interview (telephone or face-to-face) can easily be reconstructed. Elements can be prepared in advance (video from a TV or soundtrack of a radio).	A TV or radio antenna is tedious to reconstitute and to simulate.
 Fax	Allow the player to keep a paper record of the information sent.	Difficulties in updating the document in the course of the exercise according to the answers of the learners.
 Facsimiles	Can be prepared in advance. Provides contextual and understanding of elements of the scenario while enhancing immersion.	Difficulties in updating the document in the course of the exercise according to the answers of the learners if complex layout (a press, vigilance bulletin ...) or need for modeling (risk map).
 Voice	Does not require special means.	Unrealistic exchange and strong intrusion from the facilitators.

**Table 1 Comparison of the communication channels**

### **Crisis management professional facilitators versus non-professional facilitators**

In a methodological guide on exercises, authors indicate that it is necessary to have leaders from the crisis management professional world (Mercan et al., 2009). They add that as far as it is possible, the organizer has to choose facilitators who are in the same trade as the trainees. They add that the facilitator must play emotions if the scenario specifies it. It is understandable that facilitators must have real talents of actors (Boin, 2004).

These recommendations therefore can require the mobilization of a significant number of crisis management professionals. For exceptional and punctual exercises, it may be possible to do so despite the difficulty of the often busy agendas of all crisis management professionals. Due to these difficulties, training organizers also have recourse to non-professional crisis management personnel with a good knowledge of the ins and outs of crisis management (consultants, teacher-researchers and crisis management students). Non-professional crisis management personnel can be used to train and can have good knowledge on pedagogical engineering.

Then, a crisis management training organizer can wonder whether he should involve professionals or non-professional to animate the scenario. To accompany him in this choice, it is here proposed to present the advantages and disadvantages of each in order to make an informed choice.

#### *The crisis management professional facilitators*

Concerning professional facilitators, it goes without saying that they will be completely credible in their role, which will reinforce the realism of the exercise. Also, the learner will consider them legitimate, that is to say that their word will not be called into question. The organizer will not need to prepare an animation help sheet (this is a sheet that contains background information on the crisis situation and information on the role for the facilitator to answer credibly). Indeed, thanks to his professional experience, the facilitator can improvise if necessary. Finally, facilitators' briefing on the scenario and exercise will not require much time.

However, it is necessary to be aware that the improvisation of a facilitator can lead to a loss of control of the



scenario. This means that if the training organizer wishes to make the trainees work on a particular point (e.g. the difficulty of mobilizing staff in the middle of the night) and the facilitator improvises and replies that all the staff have been contacted and will be available within 20 minutes then it will not be possible to implement the learning situation. Therefore, if the organizer wishes to propose some crisis management obstacles to the trainees, it is necessary to inform the facilitators beforehand so that the pedagogy of the exercise is assured.

In other words, the follow-up of the achievement of pedagogical objectives by trainees can be easier for professional facilitators that are used to animate than for professional facilitators that animate for the first time. It is therefore a question of raising the awareness of crisis management professionals to the interest of training and what facilitates the acquisition of skills. In fact, to validate pedagogical objectives, the discussion between facilitators and trainees would be less natural and spontaneous because the facilitators have to investigate among the trainees. This often results in reality biases where the facilitator will accompany the trainees in their decision or labor some points.

Finally, some organizers use specific tools to manage animation (Dautun et al., 2011; Tena-Chollet, 2016; Verdel et al., 2010). These tools can be more or less intuitive and therefore require a certain investment on the part of the facilitators to appropriate it. In some cases, some crisis management professionals may be reluctant to use these tools. This lack of interest may be due to reluctance to change (some have their heart set on using their "old method").

#### *The crisis management non-professional facilitators*

Here we mean by crisis management non-professional facilitators, facilitators whose primary job is not to be in charge of crisis management. However, their first job of these people revolves around crisis management: trainer, consultant, teacher-researcher or students. As opposed to crisis management professionals, this type of facilitator will not have the same legitimacy to perform certain roles and improvisation will be more difficult. The organizer of the exercise will then have to produce an important work to overcome these limits and take the time to brief the facilitators.

However, appealing to non-professional crisis management facilitators has several advantages. The first is that a non-professional facilitator who is not attached to his professional experience will focus more on the integrity of the scenario throughout the exercise, i.e. he will endeavor to ensure pedagogical aspects while he will keep in mind to that the scenario had to evolve in a harmonious and credible way. The organizer of the exercise will then have more ease to propose a tool to manage animation and the facilitators may be more accommodating to make every effort to follow the achievement of the pedagogical objectives by the learners.

Thus, if the facilitators come from the same entity (training institute, consulting firm, research laboratory), it seems easier to bring everyone together for the preparation and more generally for the exercise.

#### *Comparison between crisis management professional and non-professional for scenario animation*

In table 2, the main advantages and disadvantages stated above have been recorded following the organized and observed exercises. It should be kept in mind that in any cases it is advisable to use the same facilitators from one exercise to another. Indeed, the mechanisms of an exercise will be better assimilated and the gradual disadvantages will be erased.

	Advantages	Disadvantages
Professionals	<ul style="list-style-type: none"> <li>- Credible et legitimate</li> <li>- Improvisation possible</li> <li>- Less preparatory work</li> </ul>	<ul style="list-style-type: none"> <li>- Risk of loss of control from a scenario point of view due to improvisation and more spontaneous speech</li> <li>- Reluctance to use animation tools</li> <li>- No monitoring of achievement of pedagogical objectives</li> <li>- Less availability upstream of the exercise</li> </ul>
Non professionals	<ul style="list-style-type: none"> <li>- Controlling the evolution of the scenario</li> <li>- Use of animation tools</li> <li>- Monitoring of achievement of pedagogical objectives</li> <li>- Availability upstream of the exercise</li> </ul>	<ul style="list-style-type: none"> <li>- Risk to be less credible and legitimate</li> <li>- Difficulties to improvise</li> <li>- Important preparatory work</li> <li>- Need to brief facilitators</li> </ul>

**Table 2 Comparison between crisis management professional and non-professional for scenario animation**

### Definition of the different types of role distribution

When the organizer of an exercise works on animation, he must wonder how he will distribute the roles between the different facilitators. Obviously it depends on practical conditions such as the number of available facilitators for the exercise, the maximum number of facilitators that can be mobilized due to reasons as welcome conditions, economic ease and the number of roles to be simulated. Ideally, when the organizer has the choice, he might wonder if he prefers to distribute a role by facilitator (single-role distribution) or distribute several roles to the same facilitator (multi-role distribution). To answer this question, the two cases of distribution we have used in our exercises and we observed are analyzed.

#### *The single-role distribution*

In the case of a single-role distribution, it will be easy for the facilitator to concentrate on the role he has to ensure and thus to carry out the coherence in his exchanges with trainee(s) with whom he will be in contact.

Even if these advantages are not negligible, there are disadvantages. The first is that if there are many roles to be ensured, then the animation team will be composed of many members. Also, if the facilitators are located in the same room, the organizer can expect the animation room to be noisy and the facilitators would have difficulties in concentrating and communicating with each other.

It will also be difficult to have a shared vision of the scenario throughout the exercise if the number of facilitators is high. Consequently, it may happen that a facilitator doesn't get information and subsequently transmits discordant or even absurd elements. Thus, a harmonious evolution of the scenario will not be guaranteed.

Finally, if the facilitators cannot follow the evolution of the scenario, it is not possible to certify that the pedagogical situation and the follow-up of the associated objectives can be established.

#### *The multi-role distribution*

The first advantage of a multi-role distribution is the reduction in the number of facilitators needed. Indeed, by assigning several roles to one facilitator, the human resources necessary to train the animation team are reduced. In this way, the ratio of the number of facilitators per number of learners is reduced. Therefore the atmosphere and the sound level in the animation room will be calmer. In this way, it will be easier for facilitators to communicate with each other and share a common vision of the scenario and its evolution.

The disadvantage of giving several roles to the same facilitator is the cognitive burden that this generates. The facilitator must sometimes respond to many requests from the trainees. Then, he will need to have the gift of ubiquity while being ubiquitous as the task is sometimes complicated.

#### *Comparison between single-role distribution and multi-role distribution*

The advantages and disadvantages of both types of casting are summarized in table 3. From an organizational point of view, multi-role distribution seems to be more relevant because it limits human resources. In addition, if the organizer has to pay the facilitators, the economic model will be more interesting. After all, with experience, animating several roles simultaneously could become easier.

	Advantages	Disadvantages
Single-role distribution (1 facilitator per 1 role)	<ul style="list-style-type: none"> <li>-The facilitator can focus on his role</li> <li>- Coherence of the facilitator's speech throughout the exercise</li> </ul>	<ul style="list-style-type: none"> <li>- Noisy animation room due to significant numbers of facilitators</li> <li>- Difficulty to have a shared vision of the situation</li> <li>- Difficulty to ensure a harmonious evolution of the scenario</li> <li>- No monitoring of achievement of educational objectives</li> </ul>
Multi-role distribution (1 facilitator per many roles)	<ul style="list-style-type: none"> <li>-Number of facilitators reduced</li> <li>-Smoother atmosphere</li> <li>-Shared vision of the situation and possibility of harmonizing the evolution of the scenario</li> </ul>	<ul style="list-style-type: none"> <li>- Difficulty to simulate several roles simultaneously (excessive solicitations)</li> <li>- Risk to make the scenario less credible</li> </ul>

**Table 3 Comparison between single-role distribution and multi-role distribution**



### *The importance of the animation master*

The animation team must take on a heavy task regardless of the type of distribution of roles and whatever the expertise of the facilitators. The task for each facilitator is heavy going. For this reason, it is recommended to ask a person from the animation team to play the animation master (Sénateur et al., 2008). This person, free of any task of animation can guarantee the evolution of the scenario by directing the facilitator like a conductor to carry out the situation of learning (Dautun et al., 2011; Sénateur et al., 2008). He can also support facilitators by giving them elements that they lack.

## **PROPOSED DEFINITION OF ANIMATION INTO 4 LEVELS**

### **Definition of the 4 levels of animation**

In the methodological guide on executive exercises and field exercises, the authors define two levels of animation: low animation and high animation (Mercan et al., 2011). The definitions of these two types of animation are here supplemented. The analysis of the crisis exercises organized within the framework of this research enables to define two additional levels of animation. The definitions of the concomitant animation and the animation in situ are established in the context of our research work.

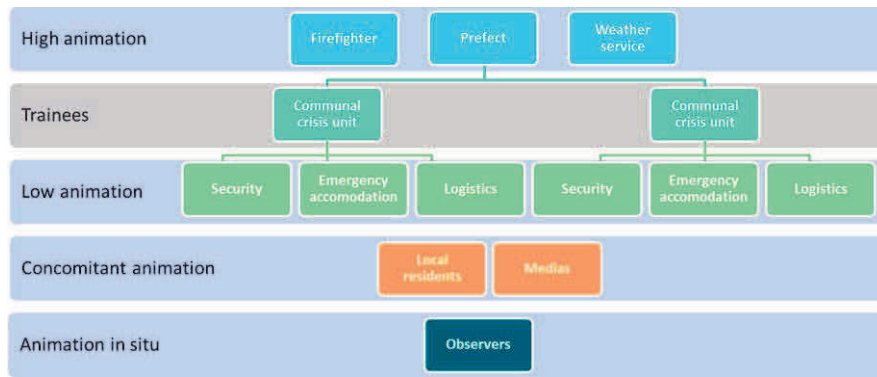
**The low animation** injects events and incidents that come from the lower echelons compared to the crisis unit simulated by the trainees. For instance, if trainees perform a crisis unit at the communal level the low animation would simulate mainly the municipal agents constituting the field teams in charge of missions about security, emergency accommodation and logistics. Therefore, the low animation must be accountable to the trainees for the actions taken.

**The high animation** simulates crisis management actors who are hierarchically above the crisis unit simulated by the trainees. If we take the previous example, the high animation would ensure higher roles of authority such as the Prefect. The high animation will also simulate the actors of the crisis management whose speech cannot be questioned by the trainees. Also in the event that learners should manage a crisis unit at the communal level, high animation could simulate firefighters and the weather service.

Beyond these two levels of animation, the research we conduct encourages us in the definition of two additional levels of animation. The third level of animation that can be observed is **the concomitant animation**. This level corresponds to all the roles that have no hierarchical relationship with the crisis unit played by the trainees. For example, in this level, we can find the media and the local residents. It is all the stakeholders in a crisis situation that do not maintain a subordinate relationship with the simulated crisis unit.

And finally, the last level of animation is at the margin of the three previous levels. It corresponds to **the animation in situ**. It is in fact a person who is in the trainees' room and who will intervene either to guide the trainees in their management of the situation or to warn them of new events or elements of decision. This person can be here only to do these interventions or it can be an observer. The choice of who will assume the animation in situ depends on the numbers of facilitators, their training experienced and the pedagogical objectives of the exercise. Animation in situ is not often encountered because it takes a tactfulness person with experience in crisis management that can be both a safeguard and a pedagogue.

The four levels of animation are shown in figure 2.



**Figure 2** Illustration of the 4 levels of animation those are possible during a crisis management training

### Settings of the four levels of animation

Each animation level will be the subject of different parameters. We define here the communication channels to be privileged, if professionals or non-professionals are needed and the type of distribution to favor.

#### *Link between the animation levels and the different communication channels*

As seen previously, the communication channels are various. The ideal is to use in the simulation the communication channels usually used by crisis actors. If we take the example of an exercise where trainees simulate a communal crisis unit, the low animation that simulates the field teams will communicate mainly by phone. The use of e-mail can also be considered according to the crisis context.

The high animation could be led to use:

- Phone and e-mail : the prefect, firefighters or weather service are led to dialogue by phone or even by mail;
- Facsimiles: document imitating meteorological vigilance maps can be used for instance;
- Voice: the prefect or firefighters can burst into the communal crisis unit.

The concomitant animation, for its part, will have to use a multitude of communication channels:

- Phone: residents and journalists can use it to question the crisis unit;
- Social networks: they enable each citizen and entity to disseminate information on the current crisis;
- The media: they will be used to inform the crisis unit or to disseminate the information gathered during previous interviews;
- The voice: a journalist can burst in the communal crisis unit.

Animation in situ can intervene by giving a facsimile or by appealing to the trainees orally.

#### *Link between the animation levels and the degree of professionalism required*

If we keep the previous example, the level of professionalism “demanded” will be different according to the level of animation.

For low animation, the facilitators require a good knowledge of the territory and the available resources because these are more operational roles. However, if the information is sufficient and if they are well trained, non-professional facilitators can simulate the low animation.

For high animation, depending on the roles it is easier to call on professionals as it is difficult to appropriate some functions. If we take the example, the role of firefighters will be easier to simulate by a member of the civil security than by a non-professional. Again, if non-professional facilitators are well-informed and trained, they can also simulate the roles of high animation.

For the concomitant animation, the roles can be assumed by non-professionals. Indeed, it seems within the reach of all to simulate the local residents for instance.

Animation in situ does not require a particular level of professionalism. However, the facilitator must have the

necessary pedagogical skills to intervene in a relevant way.

It must be added that the assignment of roles must also take into account the skills, knowledge and personalities of the facilitators so that the animation is as relevant as possible.

#### *Link between the animation levels and the type of role distribution*

Associating a type of role distribution according to the level of animation can be done if one is able to estimate the level of solicitation of trainees for a role. With our example the low animation represents a major operational aspect of the crisis unit. It will be easier for the facilitators if they can devote themselves to their roles. The mono-role distribution seems to favor here.

Similarly, the high animation will have different level of solicitation. Depending on the context of the crisis, a prefect or a weather service expert may be requested more punctually, while a civil security representative may be contacted more frequently. It may therefore be envisaged to assign several roles to facilitators simulating the prefect or the weather service expert and to assign the sole role of firefighter to a facilitator.

The roles of the concomitant animation can be cumulated with other roles and even distributed among several facilitators. Indeed, the interventions of the concomitant animation are often punctual and it is not pertinent to ask a facilitator to concentrate on the role of a journalist or local residents. Also, it may be appropriate to divide between several facilitators the interventions of the local residents because this allows varying the voice and sharing the load. Therefore, multi-role distribution seems to be relevant for concomitant animation.

Animation in situ is not affected by the type of role distribution. It is mainly a pedagogical intervention and not a simulation of crisis actors.

However, it adds to this analysis summarized in the table 4 that the person in charge of the animation management that she must adjust according to her needs and resources all the setting of the animation. Under restricted conditions, concessions will have to be made.

	Low animation	High animation	Concomitant animation	Animation in situ
Communication channels	Phone, e-mail	Phone, e-mail, fax, facsimiles, voice	Phone, e-mail, social networks, medias, voice	Voice, facsimiles
Degree of professionalism required	Non-professionals	Professionals and non-professionals	Non professionals	Non-professionals
Type of role distribution	Single-role distribution	Single and multi-role distribution	Multi-role distribution	Not concerned

**Table 4 Link between the animation levels and the animation settings**

#### **Characterization of these levels of animation**

During the development of a crisis management training, pedagogical objectives must be established (Lapierre, 2016). They constitute the pedagogical foundation of the training. The scenario that is set up must create learning situations that mobilize the learners in this sense. After analysis, it will then be possible to determine whether the learning objectives have been achieved by the trainees and whether the exercise was actually a formative one.

#### *Link between the animation levels and a typology of messages*

From the point of view of the educational sciences, each level of animation will solicit the trainees in different ways through messages of the scenario. In our work, we define three types of messages: the injection message, the control message and the atmosphere message.

The first possibility is **the injection message**. In this kind of message, the facilitator will state situational elements with the trainee in order to inject pedagogical objectives. For example, a member of low animation will pass information to the trainees on a certain number of issues impacted. The trainees will be expected to do several actions: communicating within the cell this information, recording it, and dealing with it if necessary. The second possibility is **the control message**. This kind of message is more a dialogue in which the facilitator will judge whether the objective is achieved. If we take again the last example, the facilitator will ask a trainee

the actions that have been undertaken in relation to the impacted issues. He will be able to check if there is a takeover that has been done or if this information is gone down the train. Finally, the third and last possibility is **the atmosphere message**. In these messages, there is no pedagogical goal. The main purpose is to simulate credible exchange to immerse the trainees in a crisis situation.

In a simplistic way, it is possible to correlate the animation levels with the message typology defined in the previous paragraph. Indeed, the high animation, due to its position, is going to send mainly control messages. Conversely, the low animation will mainly send injection messages. Control messages can also be assumed by the low animation when it is about receiving requests from trainees for setting up of actions (then it is about checking they have made a decision and that they try to put it in place). As for concomitant animation, they can ask questions to the trainees that stand for control messages. They can also give diverse information to trainees, so it will be injection messages. Finally, the members of the concomitant animation will be able to do messages atmosphere messages.

The role of animation in situ is somewhat outside the objectives of an animation team, so it doesn't seem to be appropriate to relate scenario messages with pedagogical scope to this type of animation.

### *The animation rhythm*

Once the author of the scenario understands how animation and message can be articulated, he must establish when these messages will be sent to the trainees. To define these moments, two parameters are used:

- The first one is the phase. The scenarios used in crisis management exercises can be divided into 3 phases: an initial phase during which trainees take their mark, a median phase during which many decisions have to be made and finally a final phase during which the actions are set up and the situation is beginning to be over.
- The second is the frequency. In order to be credible, the organizer can wonder whether the message has to be transmitted once or several times.

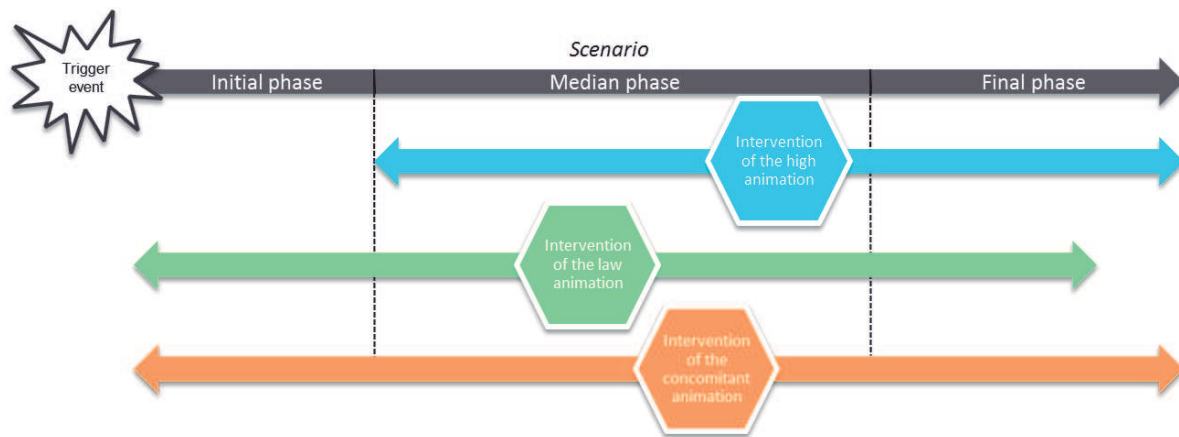
It is then to situate the message in one of these three phases and to determine whether its frequency is high (e.g. every 5 minutes) or slower (e.g. every hour).

Schematically, it is necessary to initiate a situation and leave time for the trainees to react before they can begin doing anything. Based on this philosophy, elements of reflection are proposed here. It is established that the high animation will send control messages from the middle phase to the end of the final phase.

The low animation, responsible for the feedback from the field, can send injection messages from the beginning of the exercise to the final phase. It will have to deal with an increase of these messages in median phase due to sending injection messages at the same time that sending control messages.

Finally, the concomitant animation can ensure the 3 types of messages during the 3 phases. It is likely to intervene throughout the scenario at frequencies more or less important.

These elements of reflection on the rhythm of the interventions of the different types of animation are represented in figure 3.



**Figure 3 Interventions of the different levels of animations in a crisis management scenario**

It is necessary to moderate these remarks by taking into account the preconditions for sending a message (the realization or not of an action, a strong anticipation or an error of appreciation from trainees...). It also seems necessary to detail these remarks for the different educational objectives that are expected. Thereafter, it will be necessary to work on each actor of the crisis management to identify all the influences that can have on the scenario. This will make it possible to better understand the impact of the role of the facilitator on the scenario and on the pedagogical objectives while preserving scenario coherence.

## CONCLUSION

The aim of this research is to make crisis management exercises more efficient from a pedagogical point of view. The position here is to better understand the ins and outs of the animation thanks to the different mechanisms that relate to it like the communication channels used by facilitators to send messages, the choice of the type of facilitators (professional or not) and the casting that can be made between the members of the animation team. The characterization of the animation through the definition of different levels and the linking of a typology of message makes possible to tend towards a more efficient animation in terms of pedagogy.

## PROSPECTS

The execution of a crisis scenario is not easy. It is from this observation that the work presented in this article has begun. It is the first step before making execution of scenario more harmonious and interactive. The desire is to deepen the link between the educational objectives, the type of animation, the roles and rhythm parameters. Once it could be done, it will be about working on the content needed by the facilitators to simulate their role more really while controlling the information he is giving.

## REFERENCES

- Boin, A. (2004) Crisis Simulations: Exploring Tomorrow's Vulnerabilities and Threats. *Simulation & Gaming* 35, 378–393.
- Carron, T., Marty, J.-C., Heraud, J.-M. (2007) Teaching with game-based learning management systems: Exploring a pedagogical dungeon. *Simulation & Gaming* 39, 353–378.
- Dautun, C., Pardini, G., Roux-Dufort, C. (2011) La formation des acteurs publics à la gestion de crise. Le cas français, 1–16.
- Gaultier-Gaillard, S., Persin, M., Vraie, B. (2012) Gestion de crise - Les exercices de simulation : de l'apprentissage à l'alerte, Afnor.
- Gregori, N., Brassac, C., Sirvaut, A. (2009) Appropriation collective d'un dispositif de formation. In *Epique'2009*, 73-81.
- Lapierre, D. (2016) Méthode EVADE : Une approche intégrée pour l'Évaluation et l'Aide au DEbriefing. Université de Nîmes, 426 pp.
- Lapierre, D., Bony-Dandrieux, A., Tena-Chollet, F., Dusserre, G., Tixier, J., Weiss, K. (2015) Developing a tool

- to assess trainees during crisis management training for major risks. *Safety and Reliability of Complex Engineered Systems: ESREL 2015*, 877-882.
- Mercan, G., Morizot, C., Chauzel, J.M., Rannou, G. (2009) Guide thématique sur les exercices PPI, Direction de la Sécurité Civile, 80 pp.
- Mercan, G., Morizot, C., Chevallier, A., Rannou, G. (2011) Guide méthodologique sur les exercices cadre et terrain, Direction de la Sécurité Civile, 70 pp.
- Morin, M., Jenvald, J. (2003). Using Simulation, Modeling and Visualization to Prepare First Responders for Homeland Defense. In *Proceedings of the Second Swedish-American Workshop on Modeling and Simulation (SAWMAS-2004)*, 32-39.
- Morin, M., Jenvald, J., Thorstensson, M. (2004) Training first responders for public safety using modeling, simulation, and visualization. *SIMSafe*, Karlskoga, Sweden, 15–17.
- Salas, E., Wilson, K.A., Burke, S., Wightman, D.C., Howse, W.R. (2006) A checklist for Crew Resource Management Training, *Ergonomics in Design: The Quarterly of Human Factors Applications*, 14(2), 6–15.
- Sénateur, J.-M., Gauthier, J., Chevallier, A., Tyburn, P. (2008) Exercices de sécurité civile, Direction de la Sécurité Civile, 82 pp.
- Tena-Chollet, F. (2012) Elaboration d'un environnement semi-virtuel de formation à la gestion stratégique de crise, basé sur la simulation multi-agents, Ecole Nationale Supérieure des Mines de Saint-Etienne, 394 pp.
- Tena-Chollet, F., Tixier, J., Dandrieux, A., & Slangen, P. (2016) Training decision-makers: Existing strategies for natural and technological crisis management and specifications of an improved simulation-based tool. *Safety Science*, 10pp.
- Tena-Chollet, F., Fréalle, N., Bony-Dandrieux, A., Tixier, J. (2016) Design of a semi-virtual training environment (serious game) for decision-makers facing up a major crisis. *Journal of Loss Prevention in the Process Industries*, 853-858.
- Verdel, T., Tardy, A., Lopez, P., Hansen, C., Deschanel, J. (2010) iCrisisTM : un dispositif original de simulation de gestion de crise, 7 pp.
- Walker, W.E., Giddings, J., Armstrong, S. (2011) Training and learning for crisis management using a virtual simulation/gaming environment. *Cognition, Technology & Work* 13, 163–173.