

USING ACTIVITY LOGS TO ANALYZE CRISIS MANAGERS' BEHAVIORS DURING SIMULATION EXERCISES IN INDUSTRIAL WORKPLACE

INTRODUCTION

EXPERT'CRISE PROJECT	The Expert'Crise project aims to develop crisis management training for managers and decision-makers: <ul style="list-style-type: none"> - theoretical training; - on-site accident simulation exercises. 	SIMULATION	What happened during the Expert'Crise simulation, specifically inside the crisis room , between the crisis resolution agents?	OBJECTIVES	Develop a methodology based on observation : <ul style="list-style-type: none"> - to give feedback to managers; - to suggest recommendations for improving emergency planning.
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METHOD

1. DATA PROCESSING

The observational data collection was done through camera recordings and **observation grids**.

Time	Actions	Communication			
		Agents		Message content	
		Sender	Receiver	Sender's words	Receiver's words
		<input type="checkbox"/> Person 1	<input type="checkbox"/> Person 1		
		<input type="checkbox"/> Person 2	<input type="checkbox"/> Person 2		
		<input type="checkbox"/> ...	<input type="checkbox"/> ...		
		Vector			
		<input type="checkbox"/> In person	<input type="checkbox"/> Radio		
		<input type="checkbox"/> Mobile	<input type="checkbox"/> Landline		
		<input type="checkbox"/> Computer	<input type="checkbox"/> Other:		

- After the exercise, all of the observers' grids were:
- **collated**, in order to avoid data redundancy if several observers took notes of the same event;
 - integrated into a **single database**;
 - **completed** with information from the camera recordings if grey areas remained.

- In order to process the data, several indicators were identified :
- a set of **issues encountered by the crisis unit** (e.g. media and authorities contact);
 - the **level of completion** of these issues.

LEVEL 1: Issue raised	The issue is encountered for the first time by the crisis unit, or mentioned without being resolved or questioned.
LEVEL 2: Issue being resolved	The issue is mentioned at least for the second time and is the subject of information, actions, questions or discussions by the crisis unit.
LEVEL 3: Issue resolved	Crisis unit members implement actions to resolve the issue, or receive confirmation that the problem is over.

Finally, this database includes **key information about trainees' actions and communications** linked to an issue and a level of completion.

CONCLUSION

The major challenge leading to this methodology is to achieve a **cost effective trainee activity analysis**. To do so, the Expert'Crise trainers chose to rely mainly on **observational data**.

In the end, the activity log is not as exhaustive as the initial database but it arranges raw data, classifies them into logical groups, and retains the **crisis key resolution elements** in a simple and usable way.

2. DATA ANALYSIS

Each issue is now ready to be analyzed through strategic **crisis management topics** (communication, leadership inside the crisis unit, accordance with crisis roles set in the emergency instructions, issue resolution, difficulties and deviations encountered during each issue resolution, and achieving the learning targets).

A summary table can be achieved by means of a **timeline** taking the levels of completion (in the lines), and the issues concerned (in the columns) into consideration.

Time	Alert	Emergency services contact	Evacuation	Injured person care	Fire fighting	Pollution restricting	Message to media	Missing person care
09h30	1							
09h35	2	1	1					
09h40	2	2	2					
09h45	3			1	1			
09h50			3	2	2	1		
09h55		2		2	2	2		
10h00		2		2	2	2	1	
10h05		2			2			
10h10								1
10h15		2						

- The issue emergence and resolution can be analyzed through:
- the **crisis leadership**, in relation to the interventions performed by each crisis unit member to identify the one who was leading the crisis management team;
 - the **accordance with crisis roles** set by the emergency instructions;
 - the **differences** between the trainees' actions and the emergency procedures;
 - the **difficulties** encountered by the crisis unit during the simulation.

The analysis ends with a short crisis summary to check if the simulation exercise was a success concerning the **learning targets** prepared in advance of the simulation exercise.