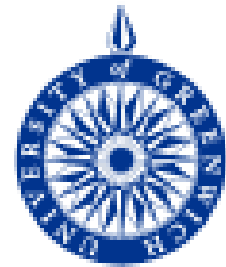


# Tracking and Influencing Trainee Emotions in a Crisis-Planning Scenario

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**PANDORA**  
PROJECT

Project FP7-ICT-2007-1- 225387



UNIVERSITY  
of  
GREENWICH

# Overview

- Brief background to the Pandora project
- Representing Emotion in Pandora
  - Use cases
  - Thoughts on using EmotionML for each
- Other key issues
  - Issue of Scale
  - Interoperability

# PANDORA PROJECT

## *Advanced Training Environment for Crisis Scenarios*



EUROPEAN  
COMMISSION



Started Jan 2010  
Ends December 2011

<http://pandora.eupm.net/public/project.php>

- Coordinated by the University of Greenwich, UK
- Partners from UK, Italy, France, Slovenia

# Current Approach to Training Crisis Managers at Strategic level



Trainees

Scenario-based Table-  
top exercise  
orchestrated by trainer

- Briefing documents
- Maps
- Reports from tactical level
- Pre-canned news casts



Trainer

Pandora aims to make the training

- More flexible
- Tailored to trainees needs
- More realistic
- Potentially delivered to remote trainees

# The Pandora concept



Trainees



Non Player  
Character

- Trainee profile is fed to the system
- System presents trainees with information about the case study scenario
- Trainees make decisions which are fed in to the system
- Trainer monitors trainee performance
  - Makes appropriate adjustments to settings
  - Monitors trainee behaviour under various time and external pressures
  - Develops a personalised feed-back
- Media Rich content – films, audio, text, video, streaming news etc.

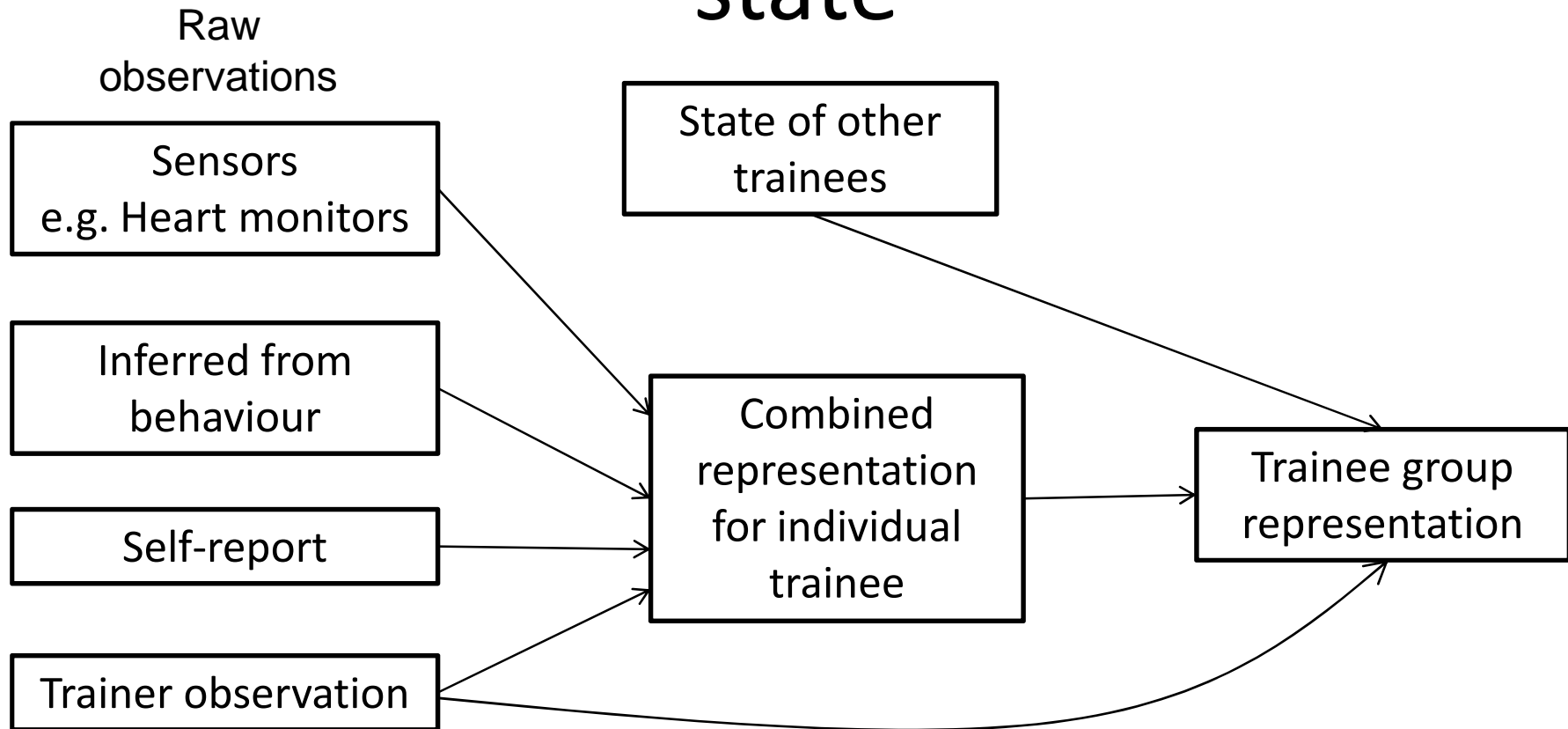


Trainer

# Representing emotion in Pandora

1. Trainees' emotional state
2. Trainees' initial state and emotional predisposition
3. Emotional change desired or target emotional state
4. Annotation of media and content with likely emotional impact
5. Indicating emotion to be represented by Non-Player Character (NPC)

# 1. Representing Trainees' emotional state



<emotion modality= >  
<category confidence= >  
<intensity value= > maybe <trace>  
<reference uri= >

# Issues with representing Trainees' emotional state

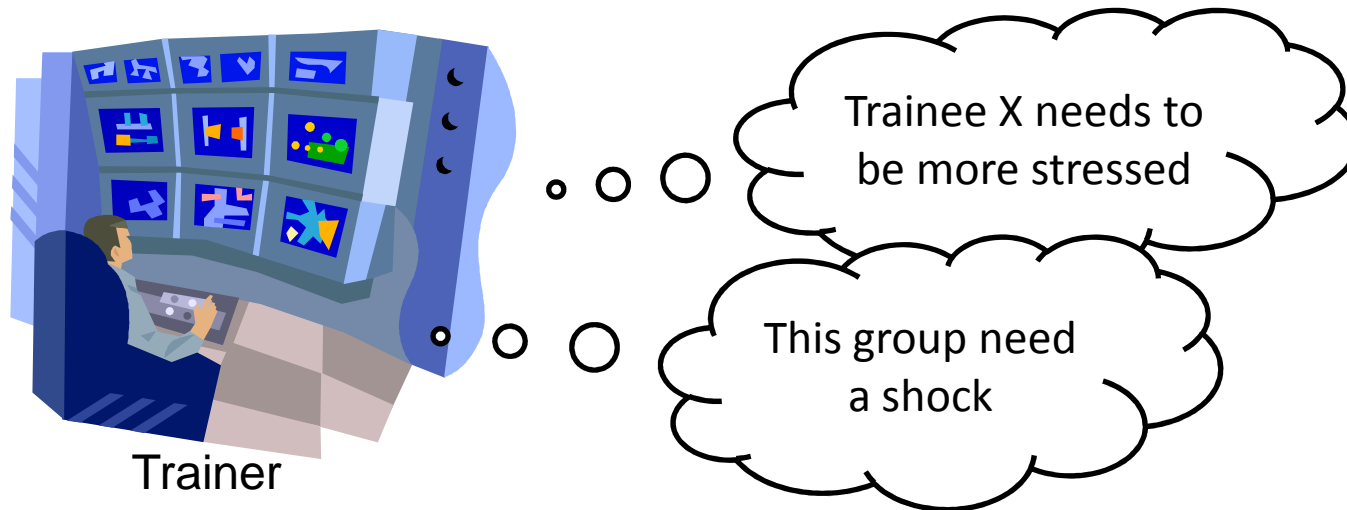
- May be useful to be able to indicate sensor type or sensor id – see issue 150 (page 11 of the EmotionML spec)
  - or could <reference> be used for this?
- We will be combining observations to produce composite view of trainee's (and group's) state. Can we represent relationships between <emotion> elements?
- Need to represent timings with relation to both absolute time and exercise timeline. Probably have to do this outside EmotionML
- Data from sensors will be a constant stream
  - May need to indicate time offset from start of stream.
  - Timing in media (spec 2.4.2.2) only allows begin and end times?



## 2. Trainees' initial state and emotional predisposition

- Trainees will undergo initial assessment
  - Base level
  - Emotional predisposition e.g. susceptibility to anger
- Used to
  - Guide attempts to manipulate trainees emotions during the exercise
  - Interpret trainees performance
- Base level can be represented using <emotion>, <category>, <intensity>
- Can predisposition be represented? <action-tendency>?

### 3. Emotional change desired or target emotional state



- Represent as
  - Target emotional state (<category>, <intensity>)Or more specifically
  - Direction of change (e.g. more anxious) and rate of change towards some target state - an emotional vector? Not so clear how we can represent this.

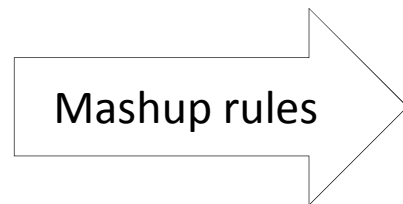
# 4. Annotation of media and content with likely emotional impact

- Not the emotion expressed within the media but the likely emotional impact on the audience.
- Need to be able to take individually annotated items **and combine them.**
- E.g.

Images

Voice over

Background noise



News broadcast



Trainee

- Each item annotated with emotional vector (category and intensity) ?
- Rules for combining individual elements?

# 5. Non Player Characters

- Have an emotional state
  - Manipulated to have emotional impact on trainees
  - Instructions needed for rendering engine

```
<emotion modality= >  
    <category >  
    <intensity >
```

- Need multiple modalities – how the emotion is to be expressed. These can just be listed
- Need to take account of available representations (e.g. maybe only voice available)

# The issue of scale

- All values are represented on a scale of 0..1 or -1 .. 1
- Implies?
  - All scales are continuous rather than discrete
  - All scales are linear rather than, for example, logarithmic or taking account of a “tipping point”
- Is this true? Is it valid?

# Interoperability

- Initially not a big issue for Pandora but maybe in the future e.g. sharing of annotated media with other systems
- The support for multiple and custom vocabularies creates a lot of flexibility

But

- Lack of agreed mapping to a canonical vocabulary limits interoperability.