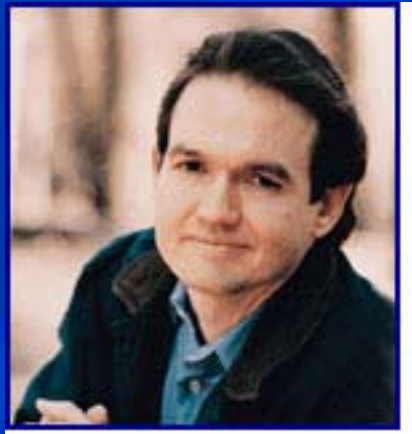


# What can we learn from fun and games?

Anne Helsdingen

TNO | Knowledge for business

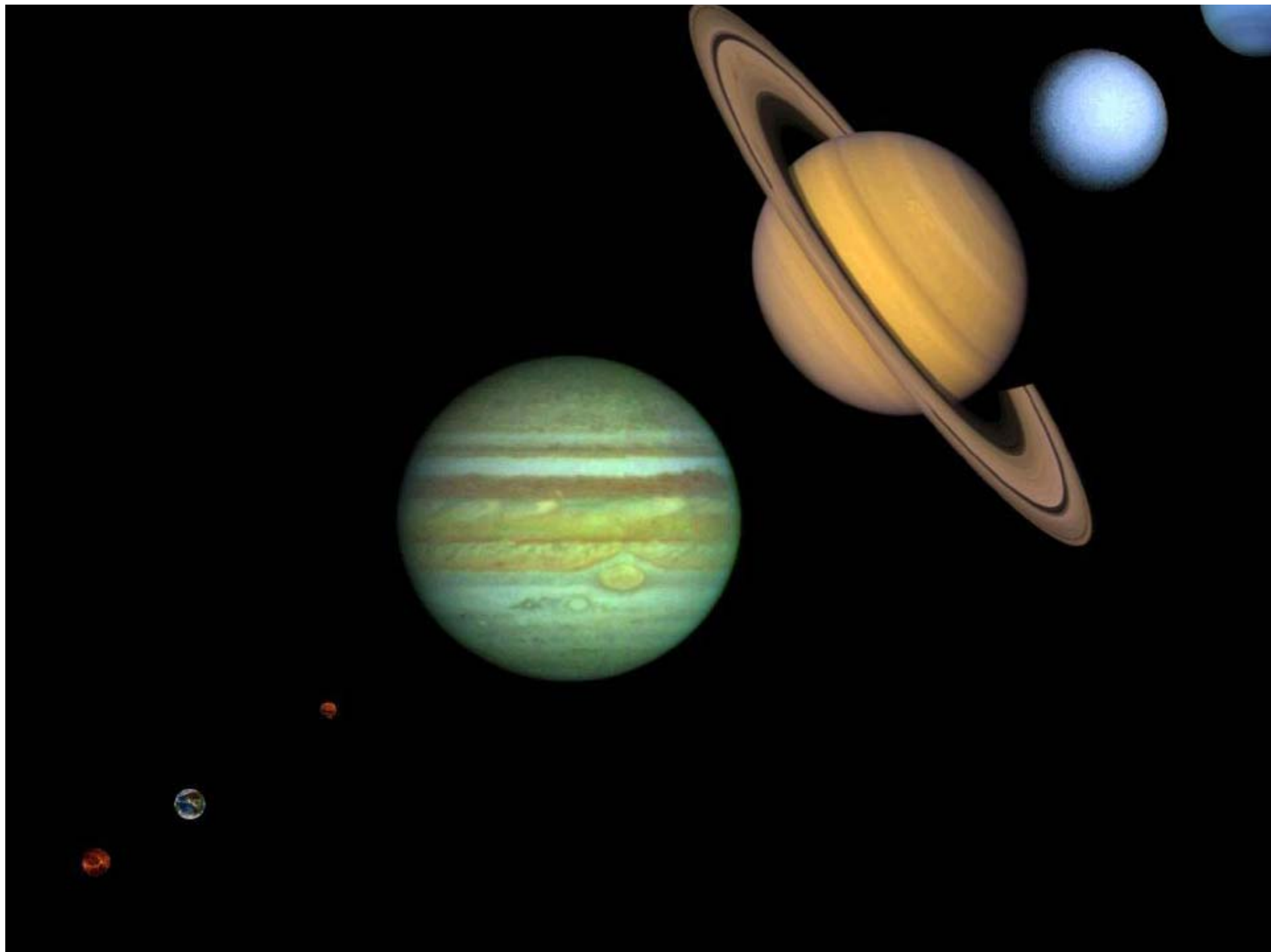


“Once upon a time...”

Presentation:

‘Serious games’: contradictio in terminis?

Research & Development opportunities

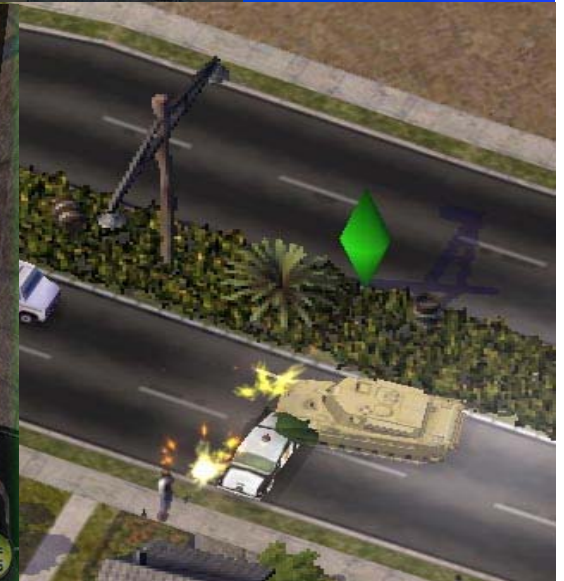
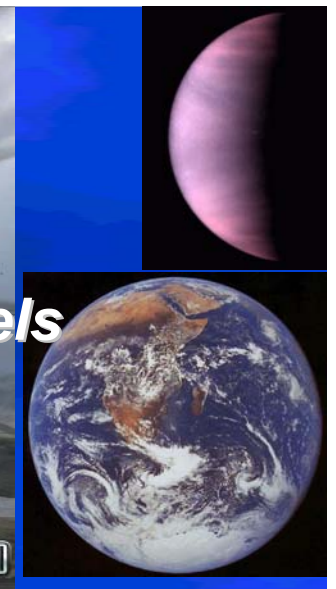


Training and education

Games



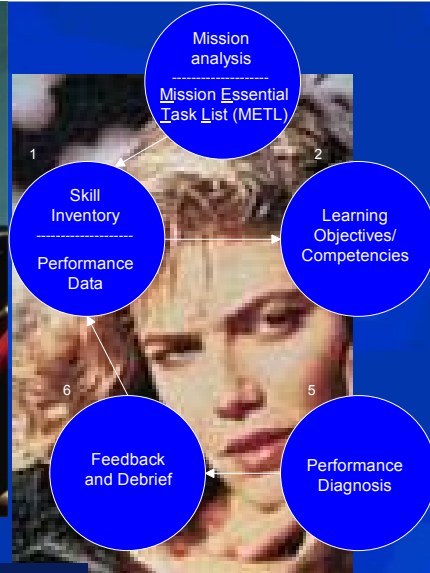




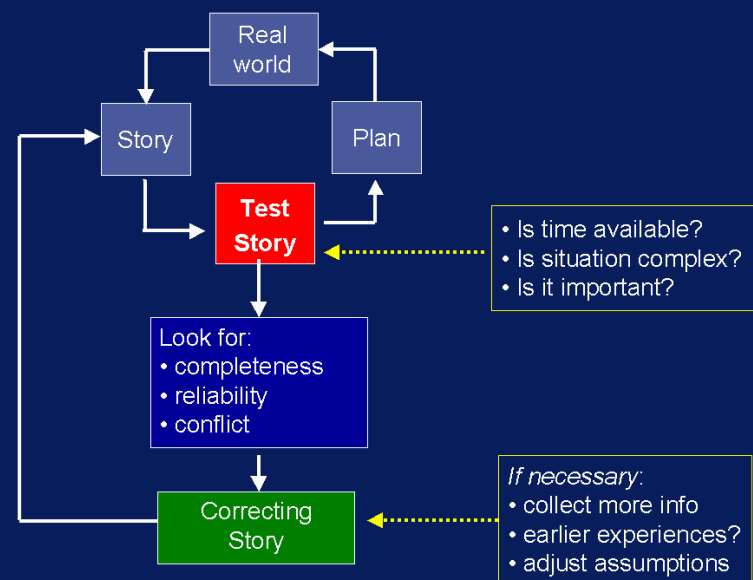
For those in the mood for destruction, grab the tank and knock other cars out of your way



**Establish a clear link  
between learning goals,  
events and  
performance objectives**



**Free play does not  
ensure effective  
training**



**Provide exercise  
control to instructor**

**Develop an exercise  
management plan**

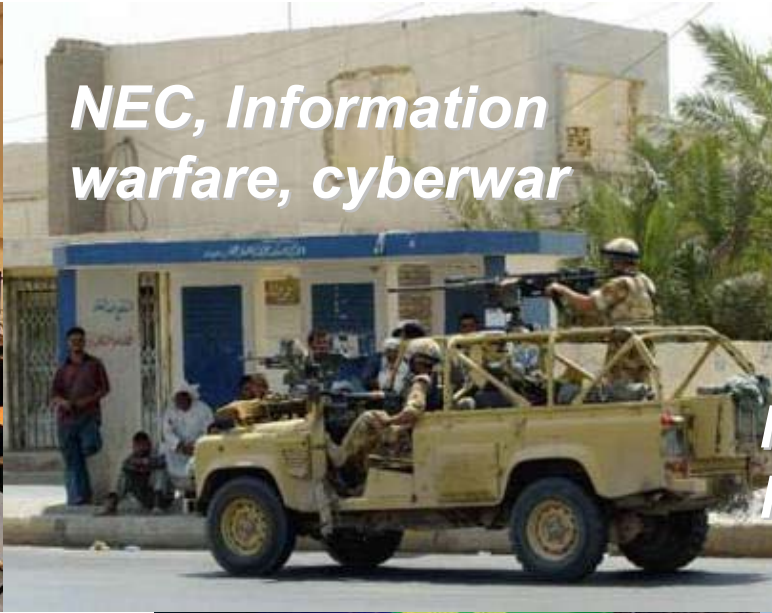


**Exposure to a task is not  
sufficient for learning**





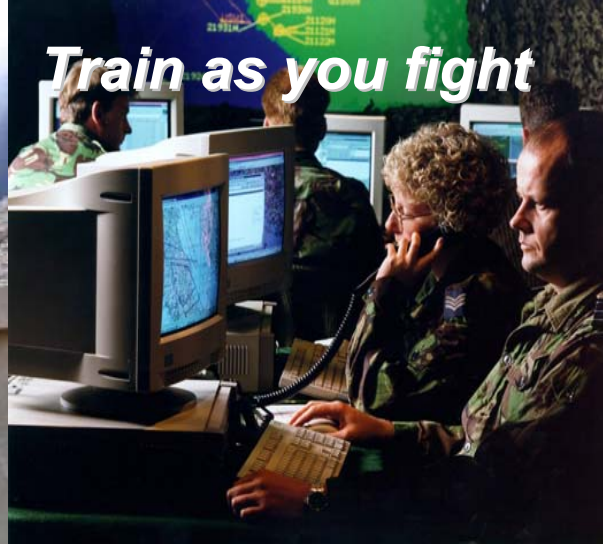
*NEC, Information  
warfare, cyberwar*



*More tasks, less time,  
less personnel*



*Just-in-time training*



*Train as you fight*





Entertainment

Emotion

Player control

Free play

Unpredictable turn of events

Fantasy

No boundaries

Social interaction

Surprise

Risk

Suspense

Art & beauty

Learning process

Structure

Learning goals

Instructor control

Standardization

Realistic problems

Effective & efficient

Transfer of training

Validity

Fidelity

War of The Worlds



Clark N. Quinn:  
Engaging Learning

**Contextualized**

**Clear goal**

**Appropriate  
challenge**

**Anchored**

**Relevant**

**Exploratory**

**Active  
manipulation**

**Appropriate  
feedback**

**Attention getting**



**Build experiences, not learning content!**



# Research and Development

- Why are games engaging? And for whom?
- Which elements of games inhibit the learning process?
- Which elements of 'traditional' learning environments make them boring?
- When is learning fun?
- FALCON IV - AIRBOOK
- GATE, AGS



# Research and Development

## AI and Games

- How can we support performance measurement in a free play, unpredictable game play?
  - Which roles can virtual agents play in a learning game?
  - How intelligent and generic do virtual agents have to be?
  - How do we make them intelligent?
  - Do virtual agents need to display emotion?
  - How do we interact with virtual agents?
- 
- IKAT, CHI Systems





# Research and Development

**TACOP**: opposing force for training

**TACTEAM** : team member for training

**Learning agent**: perfect operator for instruction / performance measurement

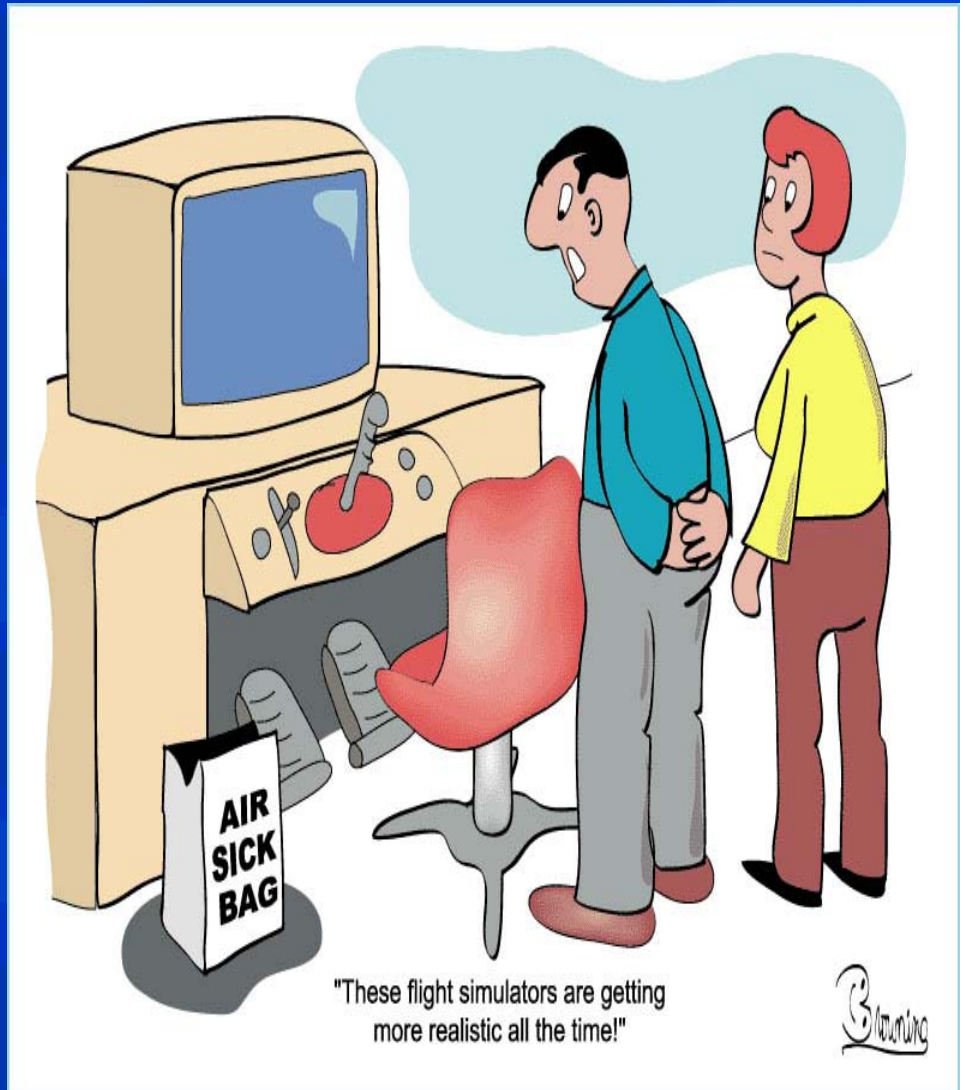
**Ashley**: hostess as a guide through the virtual (training) world

**Situation Assessment Model**: Modular architecture for cognitive model

# Research and Development

## Cybersickness:

- What game elements make us sick?
- What can we manipulate (software, hardware) to prevent cybersickness?
- UU, SRON





## Research and development

**Guidelines** to prevent cybersickness: Field of view is important, adaptation, gravity, inertial accelerations.

**Research environment** for cybersickness, simulation sickness & motion sickness studies: from low fidelity to high fidelity systems

# Goal

Develop (guidelines for) games that are cost-effective, engaging, comfortable and have a high training value



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"I didn't actually catch anything, but I do feel I gained some valuable experience."