A Playful Approach to Flood Defence

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Outline

1. Introduction
2. Playful approach
3. Usefulness of this approach to flood defence
Flooding

Natural and devastating disasters

Occur “rarely” and unexpected
How to get prepared for the unexpected?
Videogames

Playing = learning?

Acquirement of a mental model
Can videogames be a beneficiary tool to flood defence?
Definition of a game

Games are rule-based systems with variable outcomes that players can exert influence on by manipulating the rules (adapted from Juul, 2005).
Games vs. DSSs & Simulations

“Humans”

“Outcomes”

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Serious gaming

- Non-entertainment purpose
- Meaningful
- Valid
- Fun
Examples of serious games

- Peacemaker
- Hazmat: Hotzone
Advantages of serious gaming

• Experiential

• Safe

• Authentic

• Motivating

• Inexpensive
With these characteristics in mind... how can serious games be beneficial to flood defence?
Educational value

Smith, K. (1996)

DSSs

Simulations

Serious games

Educate

World

Inform aid agencies

Politicians

Governments

Train school teachers

Rescue services

Small builders

Industry

Provide for

Warning

Evacuation

& Aid

Preparedness

Mitigation

Assess

Risk

Assess risks for life & property

Provide protective structures & land planning

Monitor

Map & Interpret

Events
Educational value

• **Practice**
  • Decision making knowledge & skills
  • Procedural knowledge & skills
  • Mental simulation

• **Mindfulness**
  • Test assumptions & expectations
  • Self-consciousness
  • Open-mindedness

• **Inform**
  • Awareness creation
Organizational value

- Knowledge repository
- Shared and explicit vision
- Stimulate discussions
Flood games

Flood Ranger

Flood
Levee Patroller
Levee patrollers
Levee failures

Wilnis, the Netherlands, 2003
Levee failures
Levee rings
Levee Patroller demo

LEVEE PATROLLER
The Levee Inspection Simulator

Training
Complete Exercise
Single Exercise
Options
About
Quit

Version 2.0.2.0 (c) GeoDelt, 2007
Conclusion

• **Problem** → Floods occur rarely and unexpectedly:
  • Situations cannot be trained
  • Measures cannot be tested

• **A solution** → serious games:
  • Differ from DSSs & Simulations
  • Have an educational & organizational value

• **But** → more convincing evidence is needed (PhD?)
  • Design
  • Effects
Questions?

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More information about Levee Patroller:
http://www.delftgeosystems.nl/leveepatroller

More information about serious gaming:
http://www.seriousgaming.tudelft.nl