Learning from Serious Games?

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1. **How** do we learn (optimal) from Serious Games?

2. **What** do we actually learn from Serious Games?
1. Adaptivity
2. Cueing
3. Regulation of information complexity
4. Narrative elements (e.g. surprise)
Online adaptation:
Continuously balance challenges in the game with (developing) skills of the trainee
Agent based approach

• Complex individual behavior and adaptation possible

Agent organisation for coordination

• Balance between individual flexibility and global story line maintaining learning goals
1. Surprise
2. Foreshadowing
3. Perspective
4. Storyline
5. Game mechanics
6. Audiovisual context
7. Rhetorics
8. ...

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Learn or persuade

1. Rules
2. History
3. Audiovisual context
4. Visual content
5. Texts
Transfer of Gaming

To what extent skills, learned by training (playing a game) are transferred to the real task?
<table>
<thead>
<tr>
<th>PC gaming transfer taxonomy (outline)</th>
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**Attitudes**
- **Motivation**
- **Initiative**
- **Integrity**

**Social skills**
- **Communication**
- **Cooperation**
- **Leadership**

**Cognitive skills**
- **Interpretation**
- **Problem solving, decision making**
- **Planning**

**Knowledge**
- **Background, context, boundary conditions, specific facts**
- **Working with rules and procedures (if..., then...)**
- **Functionality (how it works, controls, interfaces)**

**Perceptual-motor skills**
- **Searching, detection, perception (different modalities)**
- **Operation (controls, instruments, displays)**
- **Motor performance**
Main results

1. Visual cues are effective with game experience

2. Adaptivity saves learning time up to 30%!

3. Narrative elements improve learning (by surprising events) and curiosity (by foreshadowing)