Computer Games, Learning & Work

A Synthesis of Antagonisms?
**Experiences in E-Learning**
- High drop-out rate
- Offers lack didactic and motivating designs
- Learners lack motivation and self-learning skills

**Postulation:**
- New learning culture
- Encouragement of life-long learning

**Aim:**
- Constructivist learning
- Situated, social, emotional learning

---

**Digital Game-based Learning**
Prelude: Digital Game-based Learning

Founder: Marc Prensky, USA

Publication: Digital Game-based Learning, 2001

“Anyone who makes a distinction between education and entertainment doesn't know the first thing about either one. - Attributed to Marshall McLuhan.”

(Prensky 2005: 97)
Prelude: Digital Game-based Learning

Computer games

E-Learning
Prelude: Arguments for and Theses Concerning Game-Based Learning

- Effective learning/learning outcome
- New generation of learners: Digital Natives
- Learning through computer games
- Increase motivation
- Diverse fields of application

Digital Game-based Learning/Serious Games
Prelude: Terminology

- Digital game based learning
- Edutainment
- Stealth Learning
- Serious Games

Common denominators:

Entertaining, interactive educational programs that include a pedagogical intention.

Example: Techforce (German Computer Games Award 2009)
Prelude: Terminology

Gaming

- Lightheartedness
- Purposeness
- Voluntary action
- Feeling of joy

Learning/ Working

- Hardships
- Seriousness
- Duty
- Strenuousness
Prelude: New discussion on learning
Quantitative Survey

- Students of the University of Bielefeld
- Data collection: April to June 2008
- Total participants $n_N = 737$
- 62.8% female and 37.2% male students
- Average age: 24 years

Methods for Data Analysis

- Uni- and bivariate analysis
- Semantic differential
- Principal component analysis
- Cluster analysis
Empirical Study – Univariate Analysis

What is played?
multiple response (n=645)

- Board Games: 67.8%
- Active Games: 60.6%
- Card Games: 58.4%
- Computer Games: 18.2%
- Video Game Consoles: 25.7%
- Role Plays: 8.8%
- Digital Learning Games: 5.9%
Empirical Study – Univariate Analysis

Game Characteristics (n=716)

- Interaction: 58.3%
- Feeling of joy: 56.1%
- Voluntary action: 52.5%
- Rules: 48%
- Challenge: 33.4%
- Suspense: 31.9%
- Presence: 30.3%
- Success: 26.1%
- Competition: 25.1%

Percent
Empirical Study - Univariate Analysis

Strong contrasts to the concept of playing (n=718)

- Duty: 84.7%
- Work: 77.7%
- Seriousness: 75.8%
- Necessity: 63.3%
- Reality: 60.4%
- Performance: 51.9%
- Future: 48%
- Effort: 39.5%
- Practice: 21.5%
Empirical Study – Semantic Differential

- Which features students associate with games, work, and learning in order to determine the semantic field of these terms.
- A total of 35 opposing adjectives pairs were used which derived
  - from a previous social-historical analysis as well as
  - from other studies (Hanhart 1964; Eichler 1979)

<table>
<thead>
<tr>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Rough</td>
<td>Smooth</td>
</tr>
<tr>
<td>Active</td>
<td>Passive</td>
</tr>
<tr>
<td>Empty</td>
<td>Full</td>
</tr>
<tr>
<td>Small</td>
<td>Big</td>
</tr>
<tr>
<td>Cold</td>
<td>Warm</td>
</tr>
<tr>
<td>Clear</td>
<td>Fuzzy</td>
</tr>
<tr>
<td>Young</td>
<td>Old</td>
</tr>
<tr>
<td>Soft</td>
<td>Wild</td>
</tr>
<tr>
<td>Sick</td>
<td>Healthy</td>
</tr>
<tr>
<td>Square</td>
<td>Round</td>
</tr>
<tr>
<td>Tense</td>
<td>Relaxed</td>
</tr>
<tr>
<td>Sad</td>
<td>Happy</td>
</tr>
<tr>
<td>Quiet</td>
<td>Loud</td>
</tr>
<tr>
<td>Wet</td>
<td>Dry</td>
</tr>
<tr>
<td>Nice</td>
<td>Ugly</td>
</tr>
<tr>
<td>Fresh</td>
<td>Stale</td>
</tr>
<tr>
<td>Coward</td>
<td>Brave</td>
</tr>
<tr>
<td>Close</td>
<td>Distant</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Empirical Study – Semantic Differential

Playing

- social
- change-able
- active
- joyful
- free
- good
- all-round
- nice
- fresh
Empirical Study– Semantic Differential

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play</td>
<td>Work</td>
<td>0.21</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Play</td>
<td>Learning</td>
<td>-0.03</td>
<td>not significant</td>
</tr>
<tr>
<td>Learning</td>
<td>Work</td>
<td>0.32</td>
<td>p&lt;0.001</td>
</tr>
</tbody>
</table>
Playing

<table>
<thead>
<tr>
<th>Playful</th>
<th>Serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>Solitary</td>
</tr>
<tr>
<td>Entertaining</td>
<td>Strenuous</td>
</tr>
<tr>
<td>Loud</td>
<td>Quiet</td>
</tr>
<tr>
<td>Free</td>
<td>Unfree</td>
</tr>
<tr>
<td>Joyful</td>
<td>Gloomy</td>
</tr>
<tr>
<td>Easy</td>
<td>Difficult</td>
</tr>
<tr>
<td>Happy</td>
<td>Sad</td>
</tr>
<tr>
<td>Relaxed</td>
<td>Tense</td>
</tr>
<tr>
<td>Process-orientated</td>
<td>Product-orientated</td>
</tr>
<tr>
<td>Nice</td>
<td>Ugly</td>
</tr>
<tr>
<td>Fresh</td>
<td>Stale</td>
</tr>
<tr>
<td>All-round</td>
<td>One-sided</td>
</tr>
<tr>
<td>Progressive</td>
<td>Conservative</td>
</tr>
<tr>
<td>Round</td>
<td>Square</td>
</tr>
</tbody>
</table>

Learning

<table>
<thead>
<tr>
<th>Playful</th>
<th>Serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>Solitary</td>
</tr>
<tr>
<td>Entertaining</td>
<td>Strenuous</td>
</tr>
<tr>
<td>Loud</td>
<td>Quiet</td>
</tr>
<tr>
<td>Free</td>
<td>Unfree</td>
</tr>
<tr>
<td>Joyful</td>
<td>Gloomy</td>
</tr>
<tr>
<td>Easy</td>
<td>Difficult</td>
</tr>
<tr>
<td>Happy</td>
<td>Sad</td>
</tr>
<tr>
<td>Relaxed</td>
<td>Tense</td>
</tr>
<tr>
<td>Process-orientated</td>
<td>Product-orientated</td>
</tr>
<tr>
<td>Nice</td>
<td>Ugly</td>
</tr>
<tr>
<td>Fresh</td>
<td>Stale</td>
</tr>
<tr>
<td>All-round</td>
<td>One-sided</td>
</tr>
<tr>
<td>Progressive</td>
<td>Conservative</td>
</tr>
<tr>
<td>Round</td>
<td>Square</td>
</tr>
</tbody>
</table>
Conclusion

Games include an interactive and voluntary action that is rooted in the present and that entails positive emotions and proceeds according to rules. In a playful competition, players want to be successful and experience challenges and suspense.

Both the empirical findings and the current discourse stress that an unambiguous negative semantic conception of gaming is no longer evident.

The empirical findings do show a positive relation between play and work; a connection between playing and learning, though, could not be detected.
Although ‘playing’ and ‘learning’ are regarded as quite different concepts, they are not understood as oppositional or antagonistic activities.

Rather, the findings illustrate that today, learning within the context of German studies and the university is marked more by a rational pressure to learn than by playful actions.

Playful learning may not be understood as coercion or duty. Playing games always entails the feeling of joy and fun. Those who have to play, are not playing anymore in the truest sense of the word.

This exposes the challenge that serious games have to meet, namely the didactic fit between playing and learning.
References


Thank you for your attention

Sonja Ganguin
University of Paderborn
E3.108
Warburgerstr. 100
33098 Paderborn
E-Mail: sonja.ganguin@uni-paderborn.de
Phone: 05251-603299