Design and Development of Multiplayer Digital Educational Games
5-Slides-Talk

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KOM Research
Seamless Multimedia Communications

Game Development, Game Technologies,
Learning/Teaching Theories

Games for Training and Education

Research for Applications
Research of Technologies
Foundations of Research
Research in Evaluation Methodologies

Research Projects

“Serious Games für die Hochschule”

Multiplayer Game Technologies

User Evaluation + User Experience

Source: www.techforce.de
Multiplayer Digital Educational Games

Motivation
- How can…
  - … people benefit from playing together?
  - … learning concepts/elements be integrated in games seamlessly?
  - … learning and gaming be balanced reasonably?
  - … learners effectively learn together by use of Digital Educational Games (DEGs)
  - … teachers/trainers effectively use DEGs for teaching?
  - … DEGs provide the appropriate degree of difficulty for each learner?

Challenges
- Collaborative Learning
- Game Mastering
- Adaptation and Personalization

source: www.gdrc.org

source: www.prsolutions.biz

source: thewrendesign.com
Research topic: DEG Game Mastering

Goals
- Enable teacher/trainer access to the game at runtime
- Influence/adjust the game at runtime
- Enable teaching at runtime
- Enable comprehensive evaluation at runtime and thereafter
- Enhanced observation tools and methods
- Ability to create and adjust scenarios

State of the Art

Peinado, F. & Gervás, P. Transferring Game Mastering Laws to Interactive Digital Storytelling, TIDSE, 2004, 48-54


HMWK project “Serious Games für die Hochschule”
Research topic: DEG - Collaborative Learning

Definition

- “Co-laborare” : to work together
- “A coordinated effort to solve a problem together” (Roschelle, Behrend, 1995)

Goals

- Enable players to effectively learn together
- Design of mechanisms to help/support each other in the process of learning
- Integration of necessary and appropriate communication methods
- Design of mechanisms to foster the development of soft skills (teamwork, negotiation, communication)

State of the Art


source: www.gdrc.org
Approaches and Results

Game Mastering - “Serious Games für die Hochschule” (HMWK)

- Students
  - play sports teacher
  - practice a typical class of physical education with different focuses (handstand, etc.)

- Teacher/Lecturer
  - plays principal
  - can trigger events / adjust difficulty
  - has logging of all player actions

Collaborative Learning – “Woodment”

- Collaborative and competitive DEG
- Unique player roles
- Boni for solving questions together

Wendel, V., Babarinow, M. Hörl, T., Kolmogorov, S., Göbel, S., Steinmetz, R. Woodment: Web-Based Collaborative Multiplayer Serious Game. To appear in: ACM Transactions on the 5th Int. Conference on E-Learning and Game (Edutainment), 2010
Thank you.

Any Questions?