Serious Games Development as a Vehicle for Teaching Entertainment Technology and Interdisciplinary Teamwork: Perspectives and Pitfalls

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Games & Teaching

Student → Play → Game → Medium for Teaching
Games & Teaching

Subject of / Medium for

Teaching

Creation / Authoring of the Game

Game

Student

Play
Games & Teaching

Student

Play

Game

Creation / Authoring of the Game

Subject of / Medium for

Teaching
Subject of / Medium for

Interdisciplinary Effort:
Programmers, Artists, Manager, Game Designer

Creation / Authoring of the Game

Game

Make

Teaching

Student
Creation / Authoring of a Serious Game

Subject of / Medium for

Teaching

Interdisciplinary Effort: Programmers, Artists, Manager, Game Designer

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Questions

- How can the creation of a serious game be used as a vehicle for teaching?
- How can a course be devised?
- Which learning goals can be addressed?
- Advantage serious game vs. game? Making vs. Playing?
Contribution

- Foundation: Experience from teaching various courses
- Identification of learning goals and parameters
- Recommendations based on lessons learned
- Expected Benefits

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- How can a course be devised?
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- Advantage serious game vs. game? Making vs. Playing?
Outline

• Introduction
• Learning Goals
• Examples
• Parameters and Best Practice
• Conclusion
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Learning Goals

- evaluation methods for assessing characterizing goal
- more complex production process
- interfaces to legacy software
- knowledge about application domain (e.g. didactics) and its approaches, methodologies, values
- empathy in novel application field
- terminology specific to a discipline
- more emphasis on security and privacy
- game design for serious games
- cost / benefit analysis

gaining knowledge and skills (entertainment technology, game engines, tools, 3D modelling, usability, game design, project management, software engineering, …)
Difficulty Level

• Trade-off between entertainment and characterizing goals adds complexity

• Necessity to become acquainted with application domain

• Constraints from application domain provide orientation

• Reality is consistent and not underspecified

• Achievement of characterizing goals may be easier to assess
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Evaluation

• Evaluation of all courses at the university with EvaSys (evasys.de) with 5-point Likert scales

• Overall score: course is among the top 10% of all courses

• Comparison between years (p > 0.15, Kruskal-Wallis-Test), unpaired case is methodological problem

comments: prospect of interdisciplinary work is major advantage
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Parameters

- Expected Results
- Assignment
- Client
- Target Group
- Participating Disciplines
- Team Size
- Project Management
- Timing
- Supervision
- ...
Parameters

- Polished game vs. game prototype
- Demotivation due to underestimation of efforts
- Value of non-technical insights
- Expectation management
Parameters

• Who represents stakeholder for characterizing goal?
  
• External organization or company more favorable than professor
  
• Real world problems
  
• Positive pressure
  
• Win-Win Situation
Parameters

- Students vs. other group
- Difficulty of emphasizing with target group
- Availability for user tests
- Characterization of target group no task for students
Parameters

- Critical mass to cope with workload vs. challenges in project management

- Student complaints: Not learning about game technology but team organization

- Change of group members increases learning opportunities
Parameters

• Different disciplines are involved at different points in time with varying workload

• But: students need to be working constantly

• Deviation from game development process (e.g. role changes or observation)

• Careful planning and self-organization (agile methods)
Best Practice

Team assembly (10 students technical background, 3 artist b., 3 management b., 2 application b.)

Kick-off workshop, expected results: prototype of first level + cost/benefit analysis for client)

Introduction of external client

Introduction to interdisciplinary work + introduction to SCRUM

Sprint 1 (2 weeks): set-up of infrastructure, professional training, application domain research
Best Practice

Sprint 2 (2 weeks): three interdisciplinary teams create game idea and prepare presentation, synthesis

Sprint 3 (2 weeks): elaborate game idea, technical feasibility study, initial client feedback, production preparation

Sprint 4 (3 weeks): production of playable digital prototype (in new teams), evaluation preparation and first playtesting

Sprint 5 (3 weeks): completion game software prototype, further playtesting, cost-benefit study

Sprint 6 (2 weeks): wrap-up of project results, final client presentation, reflection (in particular on interdisciplinary work)
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• More learning goals achievable

• No single best course format, adaptation necessary

• Guidance by identifying parameters and best practice

• Need to collect more data and to reflect on experience: far from theoretical statements
Thank you for your attention!
Questions?

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