Utilising an Educational Framework for the Development of Edutainment Scenarios

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Edutainment

- Edutainment has been designed to educate and amuse
- Edutainment scenarios must
  - combine interactivity, design and aesthetics
  - follow the principles of efficient educational course design: allow students to verify existing knowledge, challenge them to higher learning states, provide students with frequent and immediate feedback etc.
- Design of edutainment software and applications becomes complex
  - Align images, audio, graphics, video and interaction
  - Design the underlying learning process
The proposed solution

- A framework for developing edutainment scenarios

  - Focus on learning: Capitalize on the design of the learning process

  - Rapid prototyping: Bind together existing game development sources and rich media instead of developing new solutions

  - Soft programming: Prefer open source and loosely-coupled script-based solutions instead of custom gaming software
The framework

- A conceptual/operational framework for the development of edutainment scenarios
  - It is both game-based and rich-media oriented
  - Utilizes both game-development environments and multimedia programming environments
- The solution can be applied to different disciplines even by non-expert users (e.g. educators)
- The framework has been evaluated against several edutainment scenarios during a university course on edutainment
The scenario

- A rapid, adaptive or non-conventional development methodology needs to be employed for the development of a new edutainment system, based on existing game systems and platforms
Users, roles and factors

- that must be considered when designing the edutainment application

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- The definition of roles allows fuzziness (e.g. multiple roles per user)
Interactions

- Content experts study the domain and analyse user needs (C) suggest the educational content and define the objectives
- They interact with developers who understand the system limitations (B)
- User-based system testing follows (D)
- A circular process which can initiate at any point
Case study

- Department of Audio and Visual Arts, Ionian University, Corfu, Greece in the “Edutainment” course.
- Content experts take up the leading role.
- Numbers next to C, B and D are used to indicate the order of actions.
Basic game scenario

- Educate fellow students about modern art and enable them to recognise it in a museum setting
- Students developed a first-person “serious” adventure game
- The game takes place into gallery rooms where puzzle pieces need to be collected and matched correctly in order to progress to the next level.
- As the game progresses, the challenges become more difficult as time-based scoring introduced
From concept art...
... to the prototype
Technologies

- Web based game: Java/JavaScript/HTML/CSS
- State-of-the-art software packages for graphics/3D: Illustrator CS5, Softimage 2011, cinema 4d
- Sound is composed and processed through: Ableton, Logic, Reason 4
- Game environment development: unity 3d
Interactions

- high interaction complexity
- students assume key role in the process
- content experts and developers aid in the process
Conclusions

- The framework offers a graphical representation for proficiently representing development cases featuring interdisciplinary knowledge.
- It defines the interactions between the various participants and assigns roles and responsibilities.
- It can easily capture simple interactions between participants from the same discipline and assist rapid development of the edutainment software.
- More complex cases may require additional lettering/numbering to be added, while for transient systems more than one graphs may be used.