Community-based immersive 3D-video learning games in Streetview

with StreetLearn / ARLearn

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StreetLearn - Background

StreetLearn

Game based Learning

Open Educational Resources

Mobile Learning
Open Educational Resources
e.g. MACE Project

Situation:
Contents available, but:
- What is the learning scenario?
- How to involve learners?
Game-based Learning

Confucius (500 bC)

“Tell me and I will forget,
Show me and I may remember,
Involve me and I will understand ...”
Game-based Learning

Immersive learning, but high modelling costs for
- 3d environments
- Game logic
- Learning content
Mobile Learning / Augmented Reality

Authentic learning situations, but
- Effort for mobile field trips
- Not all players can be outside

Quelle: Specht 2009
Is it possible to create a 3D learning game with freely available technologies / contents at low modelling cost?
The Concept

Use Google Streetview and the real world as a playground for interacting with virtual items in location-based games.
Features

• Based on Google StreetView
  – Streetview widget
  – Streetview API
• Interoperability with published google maps
• Switch between street and map view

Basic game engine
• Walking
• Finding
• Content access
• Taking / dropping
• Conditional activities
• Quizzes
• Persistent actions
• Player interactions
StreetLearn / ARLearn architecture

Client side

Internet

Transport protocols
Data encoding

Users
Items
Location
Progress
Teams
Runs
Games
Scoring

Feature clusters

Core functionality

Core functionality

Appengine instances
StreetLearn / ARLearn data model
StreetLearn / ARLearn dependency model

TimeDependency
- offset : Dependency
- timeDelta : long

ActionDependency
- action : string
- scope : string
- generalItemld : string

AndDependency
- deps : Dependency[]

OrDependency
- deps : Dependency[]
## Cases

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Benefits

- Low modelling costs due to existing environment
- Open API for content and application logic
- Integration with the real environment
- Easy to handle for teachers and students
Results (Amsterdam case)

- Small scale evaluation performed with students from cultuurwetenschappen
- 6 students (3 on-site, 3 remote)
- Game-play scenario: police story in the Amsterdam Grachtengordel
- Learning objective: Grachtengordel as world cultural heritage
Results

Concept & Idea

User Interface

Learning Content

Game Story
Next steps / On-going activities

• Use results as input for further learning scenarios
  – Architectural learning
  – Science Learning
  – Prosumer approaches for community generated content

• Complete toolset
  – Authoring tools
  – Teacher dashboard
Thank you!
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