

Research issues: infrastructure

■ Applied science

- What's the role for academia vs. game industry?

■ A repository of Geogames?

- Many research projects have addressed the use of Geogames in their fields. Similar to the concept of wiki or open tools, is it possible or the community to establish the repository /wiki that users or educators who can freely use those tools in their practices?
- A repository of Geogame's prototypes/elements

Research issues: learning

■ Learning outcome

- How to integrate the measurement of learning outcome in the design of geogames?
- Measuring learning in a game

■ Long-term effect of Geogames.

- The potentials of Geogames have been well acknowledged with respects to their engagement and benefits to students. Are there any thoughts or measures that can help us to demonstrate their long-term effects?

Research issues: learning

■ Concept learning

- How to use games to teach concepts unknown to players?
- In most research I know, data quality is evaluated only with respect to trust. However, the learning curve for concepts needs to be taken into account.
- Example: Learn to categorize a landscape feature like „forest“

Research issues: geodata

■ Analysis of geodata

- Geogames for analysis of geodata (e.g. detecting objects from images)?

■ Crisis management

- Geogames for crisis management: how to enhance risk awareness?

■ VGI games

- A gamification approach to create VGI in a structured way?

Research issues: game mechanics

■ Use cases

- Which types of GI problems are games good at solving? Which not? Example: increasing problem awareness vs. solving a high stake conflict

■ Scaling of games

- How can we generalize from small scale, few players and table top, to world scale?

■ Game mechanics

- Collaborative vs. competitive games

Research issues: game mechanics

- Incorporation of non-geo elements.
 - The effects of enhancing spatial thinking and spatial literacy are positive and endorsed in much research. Regarding academic an career success, there are many elements which are non spatial/geo. How can we identify them and enhance our Geogames and Geoplay?
- Contingency management
 - How could the game flow automatically adapt to changing weather or traffic conditions?

Research issues: geogame relocation

■ Geogame relocation

- How can a game concept working well at one place (site-specific) be transferred to another geographic location in an automated or semi-automated way?
- What type of spatial analysis is need to support game relocation? Example: Features occur with different frequencies in different places
- What type of semantic technologies could support cultural relocation? Example: Find a drug store in Redlands, CA – find a drug store in Bamberg, DE

Research issues: interfaces

■ Interfaces

- How will new mobile interfaces change geogaming (e.g. augmented reality glasses)?

■ Geovisualization

- Modeling decision-making in a game
- Moving and speaking objects with a geospatial dimension

■ Sounds

- The role of sounds in the game

Research issues: user experience

■ Effects of demographics

- What is the demographic profile of a typical gamer? How does this demographic profile affect the collected data?
- Example: data sets will be complete only in areas that are of interest to teenagers

■ User experience

- Measuring user experience

Research issues: user experience

- Designing for individual differences
 - Some people like games – others don't
 - Some people like new technology – others don't
 - Some people like GI – others don't
 - Is it possible to engage all potential users?
 - How to design games that appeal to non geo-geeks?
Intrinsic motivation?

Book on Geogames and Geoplay

- Part I: Foundations of Spatial Gamification
 - Introduction to Geogames and Geoplay
 - Game fundamentals
 - Spatial, temporal and social expansion of games and play
- Part II: Computational Methods in Geogame Design
 - GI technologies in games
 - Data collection games, VGI games, human computation games

Book on Geogames and Geoplay

- Part III: Gaming Technologies in Geography
 - Simulation and AR games
 - Educational Geogames
- Part IV: Application Scenarios and Case Studies
 - Experience reports about the design and development of Geogames
 - Playful approaches to Geodesign