The CityPoker Designer:
A Tool for Geogame Relocation in the Classroom

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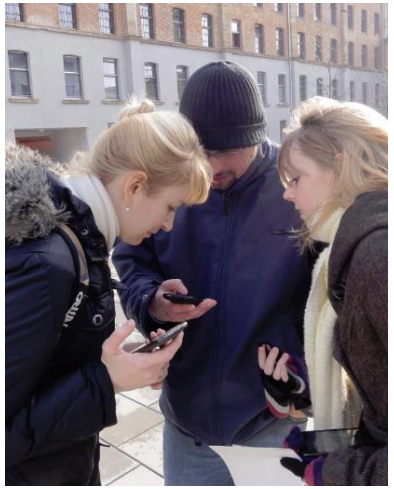
Geogames in Education (1)

- Location-based games are known to be quite effective at supporting a broad variety of learning processes (Klopfer 2008, Schaal et al. 2012)
- In education practice, we see little variation in the underlying game mechanics



Geogames in Education (2)

- Location-based games have started to become part of the media and entertainment environment of teenagers

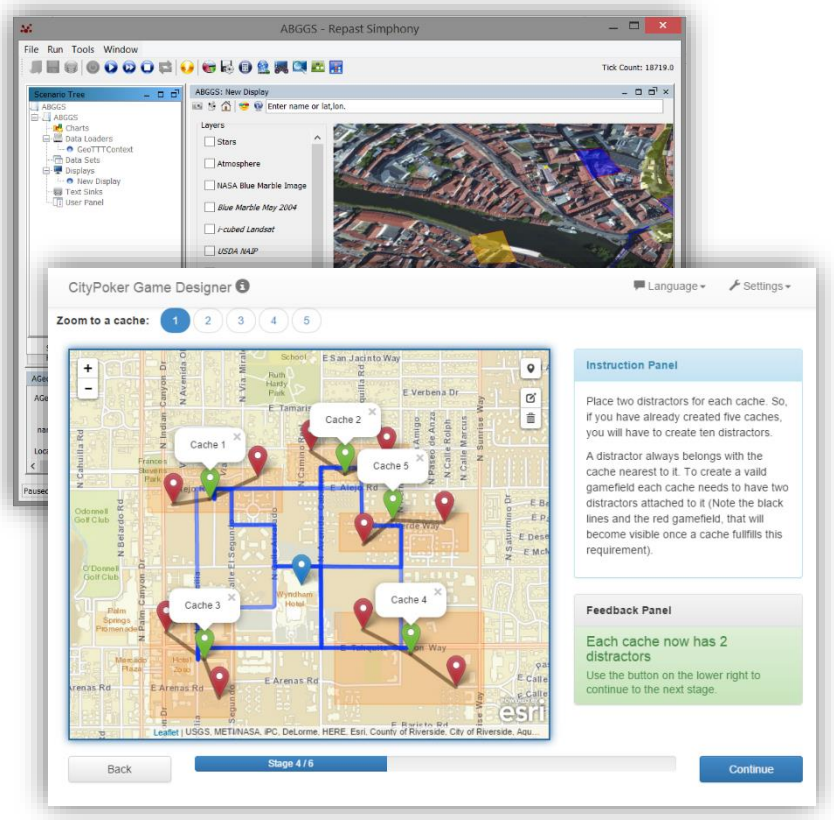
https://www.geocaching.com

https://www.ingress.com/

http://pokemongo.nianticlabs.com/

Geogames in Education (3)

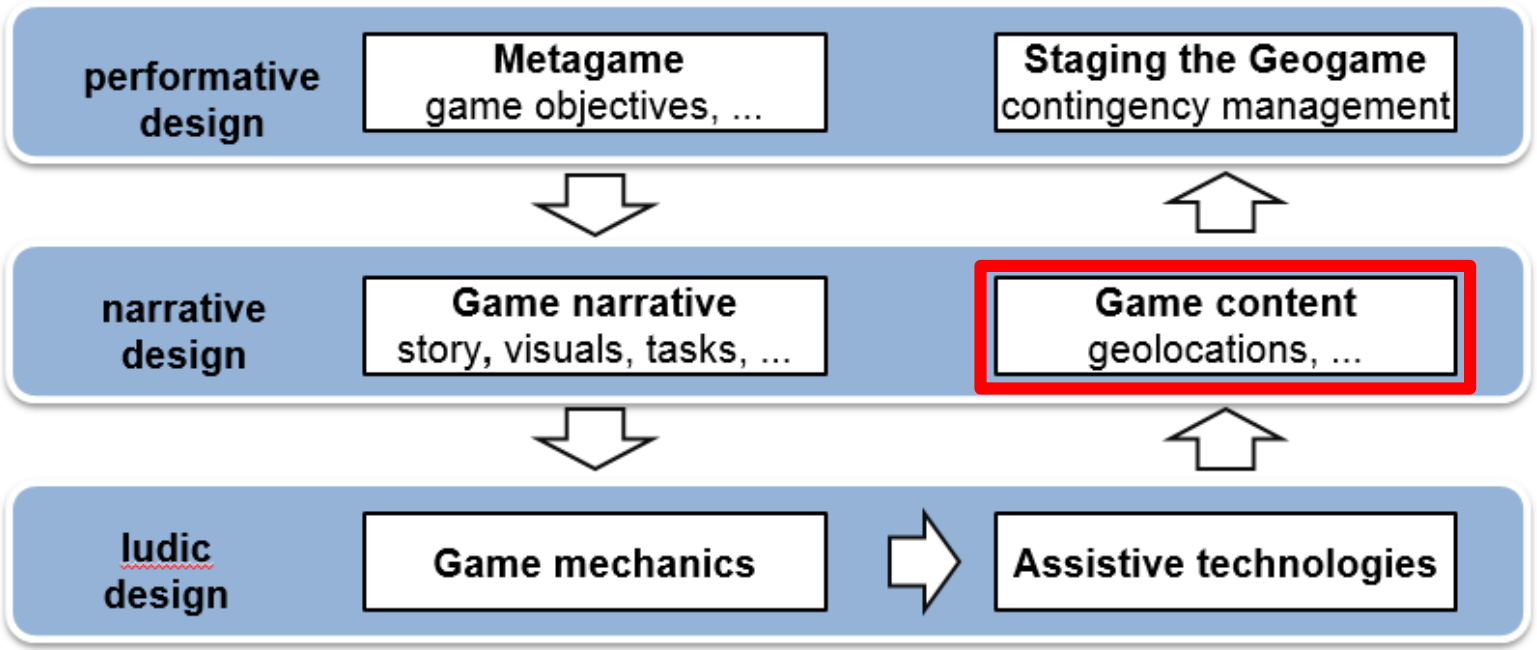
- The design process of a location-based game involves a considerable amount of spatial analysis.
- Most GIS supported analysis tasks like distance measurements would fit very well into a curriculum on spatial thinking (Sinton and Lund 2008)



Our Approach

- Bring more complex game mechanics to the classroom
- Avoid much of the complexity of the design process by applying three basic principles:
- (1) Start with a rule set known to produce a well-balanced game
- (2) Proceed with visiting the geographic environment, which acts as the game field.
- (3) Challenge the students to optimize the game flow by applying spatial analysis

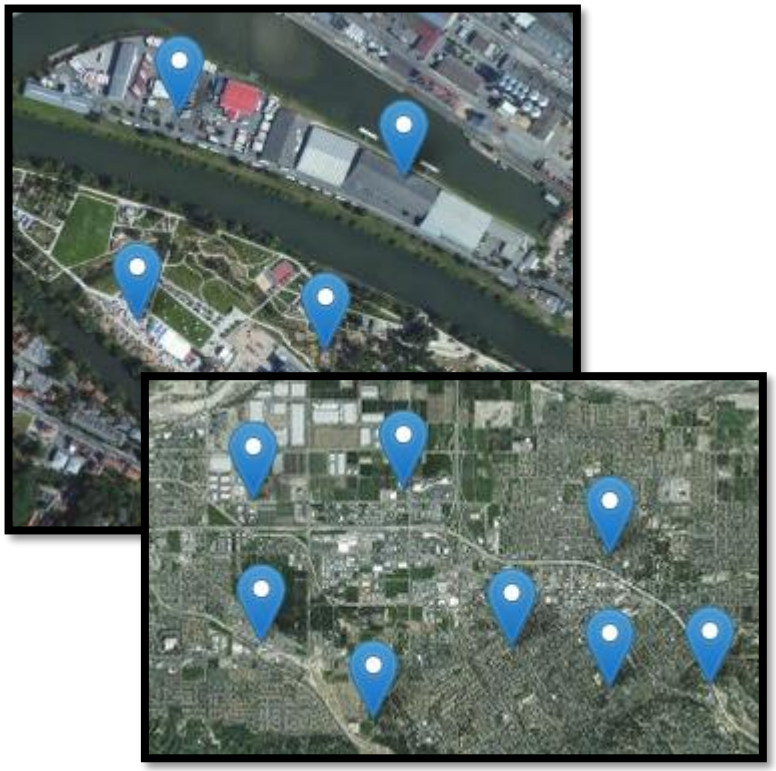
Geogame Design Process Model



Adapted from Schlieder (2014)

Geogame relocation

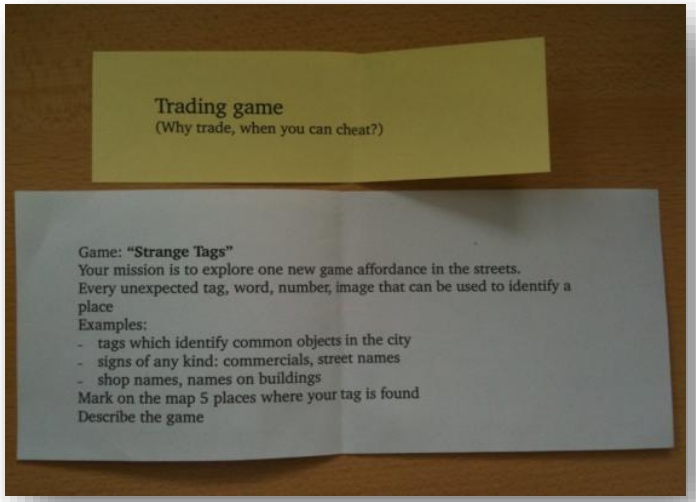
- Places of game play
  - Symbolic places having a meaning in the Geogame
  - E.g. 5 caches in CityPoker
- Places of interest
  - Places of interest to the serious game narrative
- Relocation
  - A mapping from the POG to selected POI



Place Storming

- Exploration & Finding places
  - Get ideas and check the feasibility of tasks
  - Combine a topic, a task and a place.
- Empirical Study

  In comparison to Web-Cartography
  - Hard-to-find places: More results
  - Easy-to-find places: Higher validity

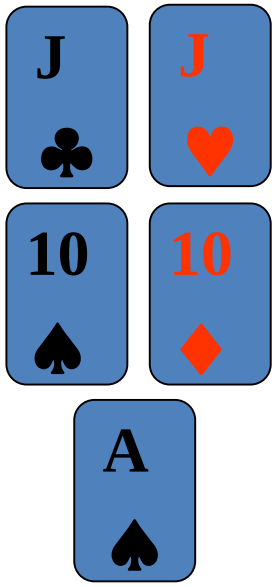


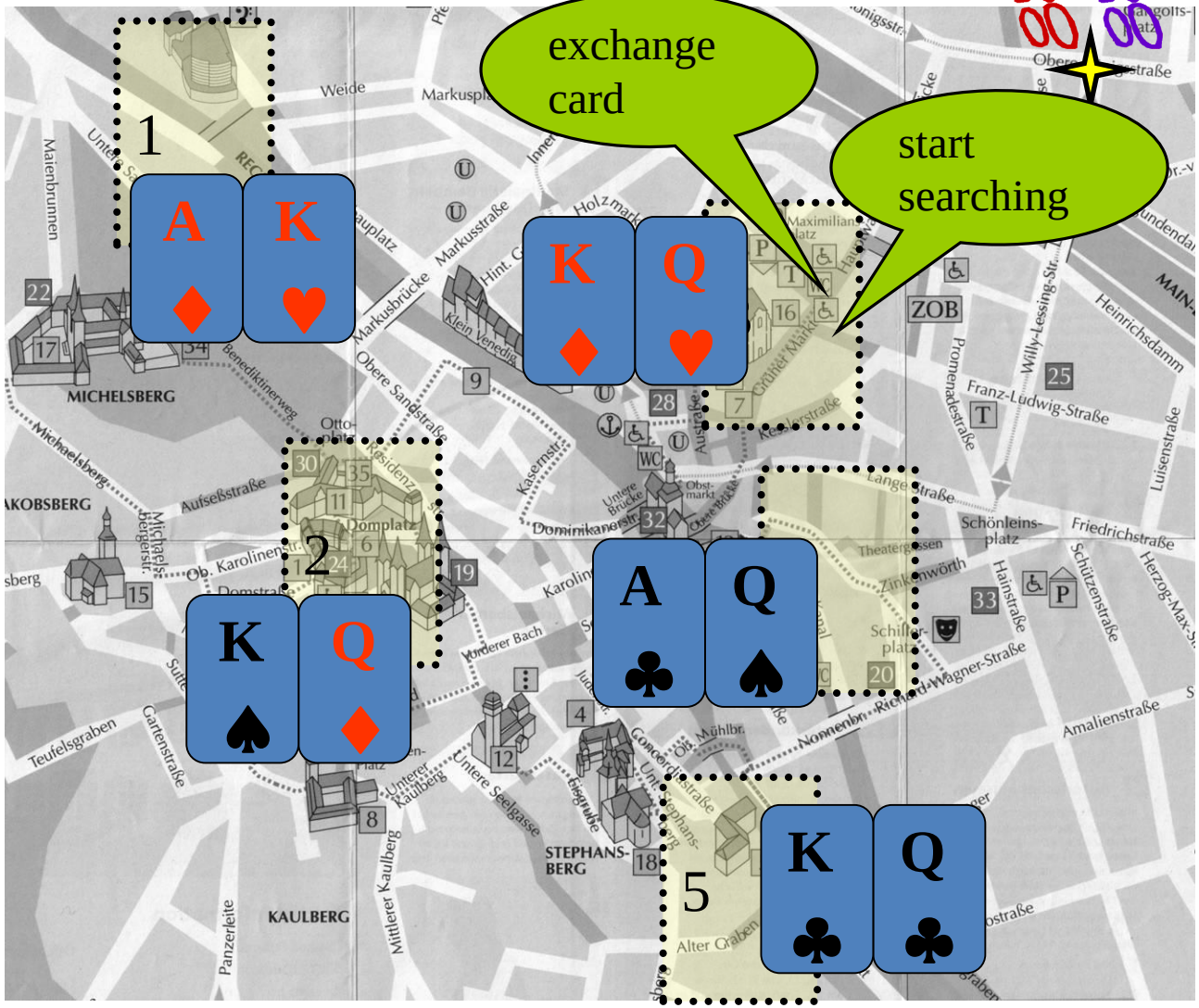
Method of in-situ association places and affordances Christiansen (2010)

Example Geogame: CityPoker

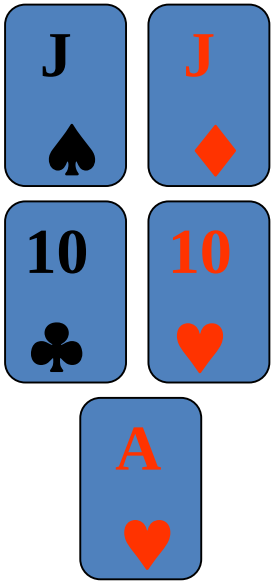
- Two teams are looking for hidden game cards
- The team with the better poker hand wins
- Real cards are hidden at the caches
- Exchange cards at each location

Player A



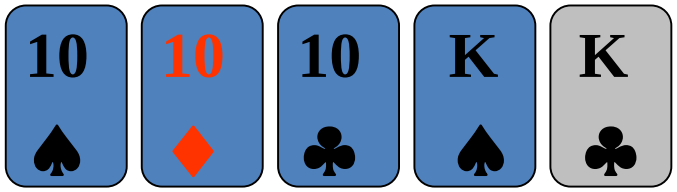


Player B



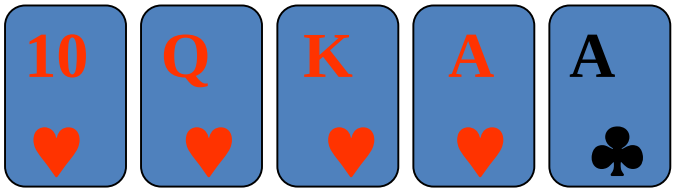
CityPoker: End of the Game

Team A



Full House

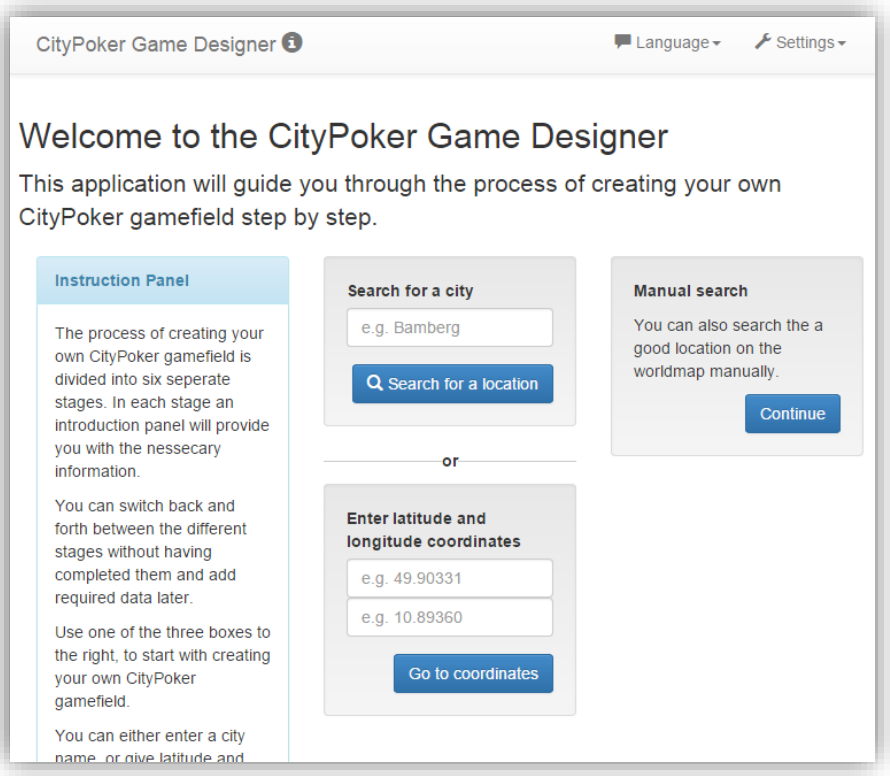
Team B



One Pair

The CityPoker Designer

- A Web-Application for creating CityPoker game fields
- Users are guided through the process of setting up their own game configuration
- Simple spatial analysis metrics help them making

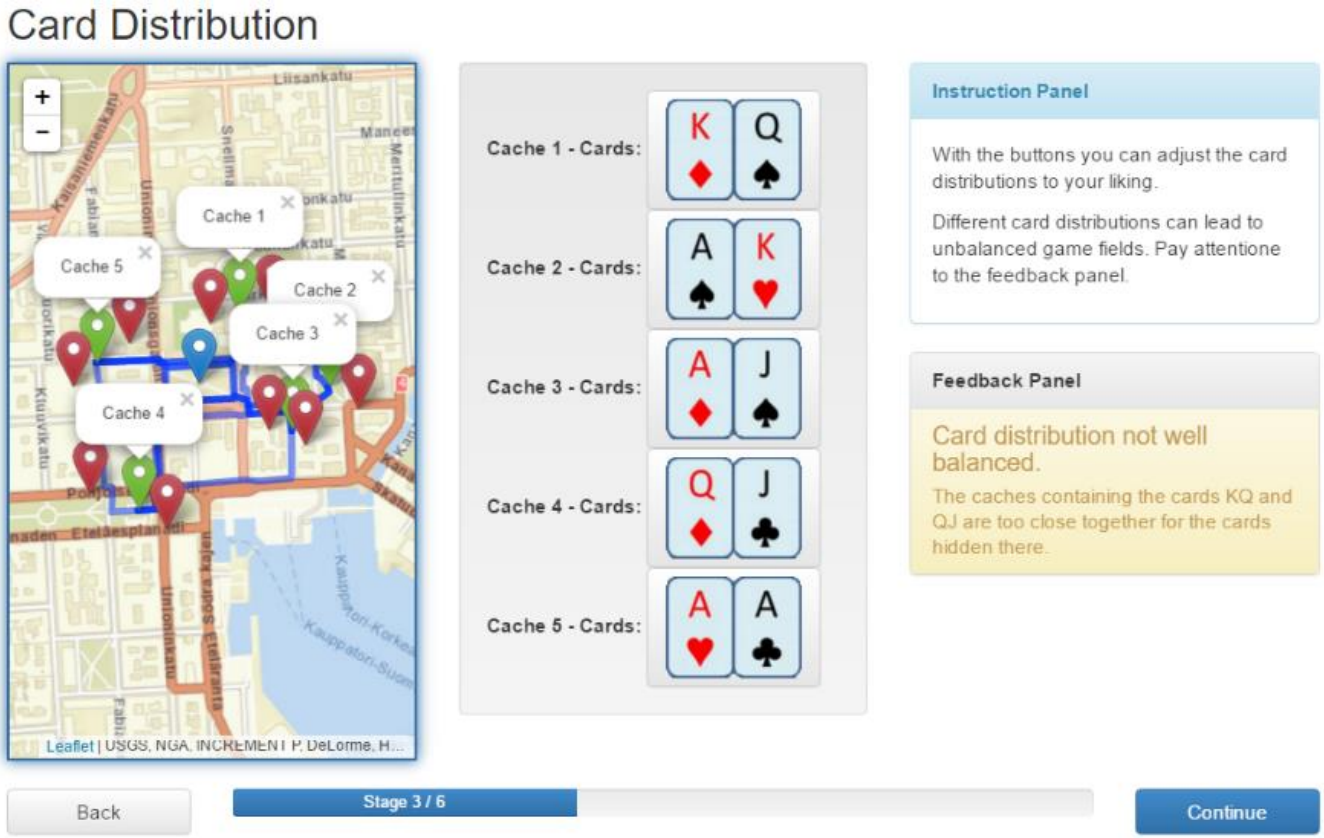


Try it: http://www.geogames-team.org/designer

Spatial Analysis: Estimating a Time Frame

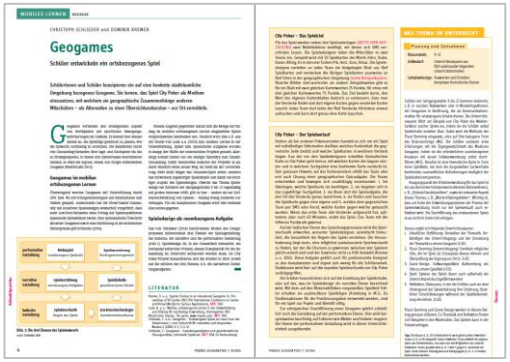
- Calculate all permutations of the fastest traveling routes between the places of gameplay a player has to visit
- Calculate the traveling time for each route
- An estimation for the upper and lower time boundary can be given by using the travel times for the shortest and longest route between all caches

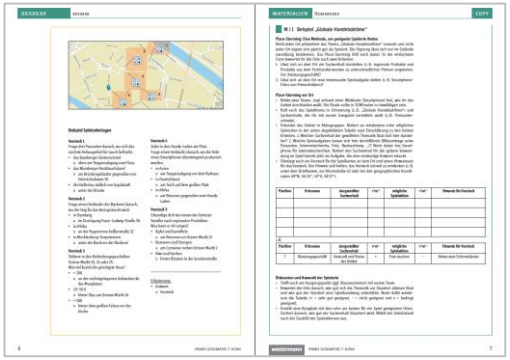
Game Specific Balancing



Game relocation in the classroom

- Teaching material
  - CityPoker Geogame
  - Schlieder & Kremer (2014), Geogames, Praxis Geographie, 7, 31-35
  - Upcoming Book

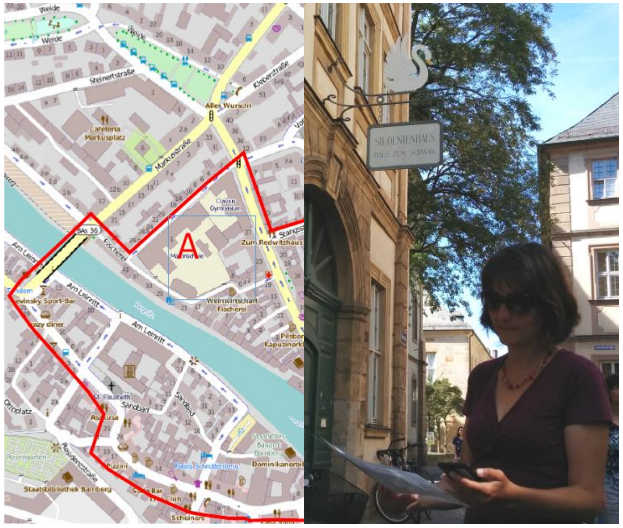




Thank you for your attention.

Questions & Discussion

Comparing scenarios



presence scenario
Participants explore the environment to identify places and encode them with a mobile app

cartography scenario
Participants use Web GIS to identify and encode places without exploring the environment

Placestorming: First findings

Place productivity (n = 14)		
	places per participant (median)	total number of places
presence scenario (Smartphone App)	3	77
cartographic scenario (Web GIS)	4	82

Participants were instructed to „find at least 3 places“.
They had 30 min to complete the task.

Finding places by Place Storming

Place variability – presence scenario (n = 14)				
	clothing trade	regional food	historic industries	
photo task	4	5	15	**24**
interview task	11	15	10	**36**
note taking task	8	2	7	**17**
	23	**22**	**32**	

place is hard to find

place is easy to find

Finding places by Web cartography

Place variability – cartography scenario (n = 14)				
	clothing trade	regional food	historic industries	
photo task	4	9	10	**23**
interview task	12	13	10	**35**
note taking task	3	3	15	**21**
	19	**25**	**37**	

place seems hard to find

place is easy to find

Descriptive differences

Place storming variability – presence vs. cartography scenario (n = 14)				
	clothing trade	regional food	historic industries	
photo task	4 vs. 4		15 vs. 10	
interview task		15 vs. 13		
note taking task	8 vs. 3	2 vs. 3	7 vs. 15	

hard in the cartography scenario, but of **medium** difficulty in the presence scenario

easy in the cartography scenario, but of **medium** difficulty in the presence scenario