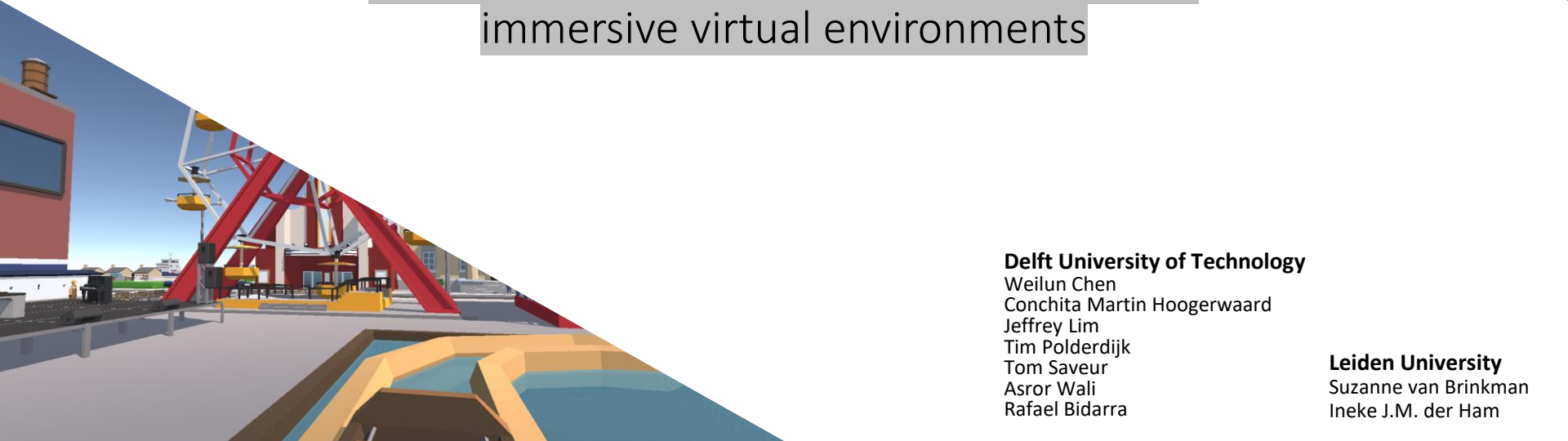




Resto Quest

a serious game on the restorative effects of
immersive virtual environments



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Introduction Domain

- "To be totally without stress is to be dead." (Hans Selye, 1976)
- Restorative Activities
- Restorative Environments
 - Nature
 - Availability
- Dysfunctional



Problem

Relax patients who are stressed

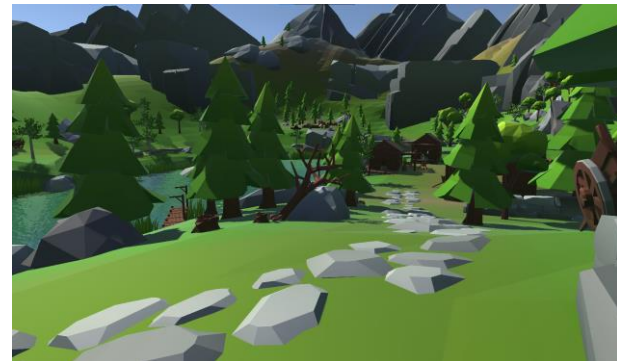
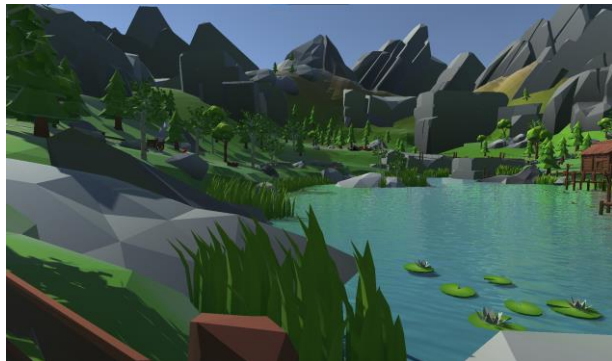
- Two different environments: City & Forest
- Low cognitive load
- Similar game mechanics in both environments



Resto Quest

- Gaming for a restorative effect
 - Currently mostly using virtual exposure (pictures/videos)
 - Leiden University

How are restorative elements from the real world experienced when they are translated to a game?



Design Challenges

- Virtual world with low cognitive load puzzles
- 2D minigames in a 3D world
- Context / Rewarding
- Rich / “Realistic” environments
- Similar gameplay in environments
- Fun
- Sounds

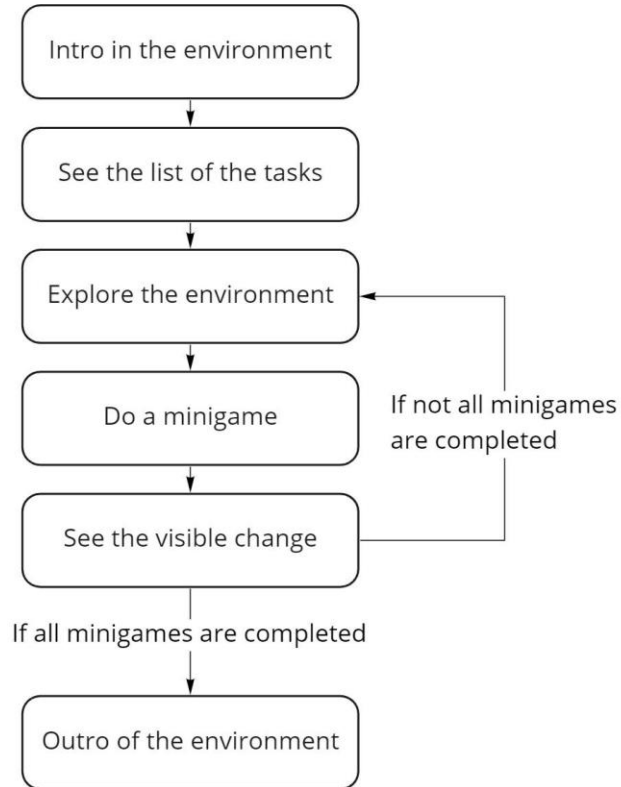


Game Synopsis

Complete tasks by exploring a real-life environment (nature or city). Either as a substitute park ranger or the vice mayor and ensure that the camping trip or party goes smoothly.



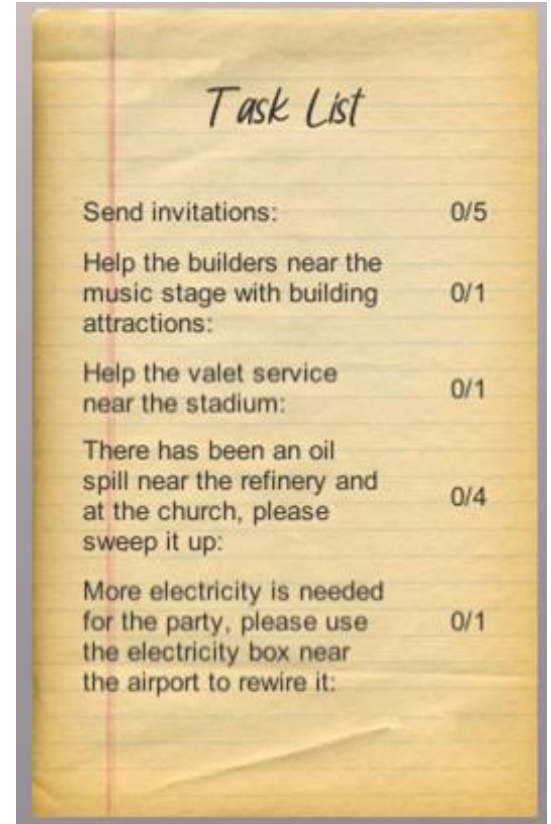
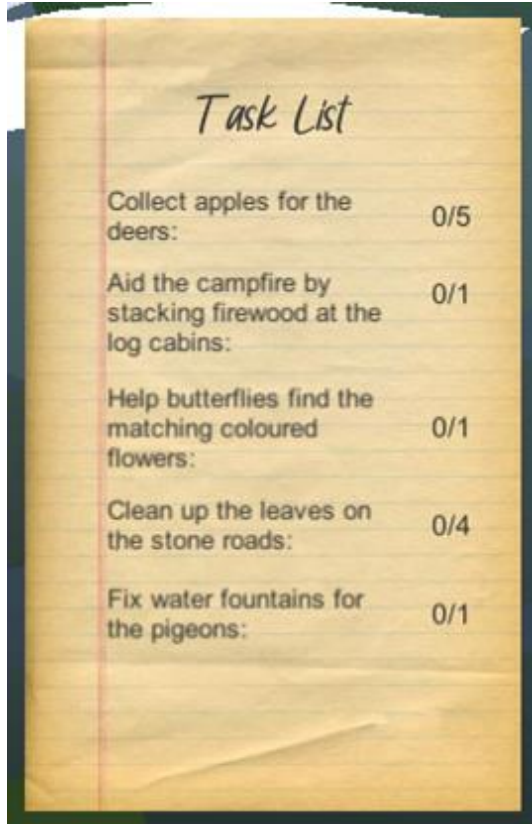
Game Loop



Game Information

- **Exploration Game**
 - Restore by Environment through Minigames
- **Scored Minigames**
 - Require certain score to continue
 - Play Time / Precision is saved for Research
 - Not main purpose of game

Game Design: Tasks, Subconscious exploration



Game Design: Rewards

Reward	Nature	Minigame	City	Reward
Campfire lit	Logs	Stacking	Builder	Attractions
Clean paths	On the path	Sweeping	On the road	Clean streets
More birds	Fountain	Connect the dots	Electric box	Ferris Wheel
More deer	Deer	Scavenger Hunt	Postman	More people
More flowers	Flower bed	Colour matching	Valet Service	Remove cars



A 3D rendered city street scene. On the left is a multi-story building with a red and white facade and many windows. On the right is a modern building with a glass facade and a red section. A blue van is driving on the road. Streetlights line the sidewalks. The sky is clear blue.

Studio Woke

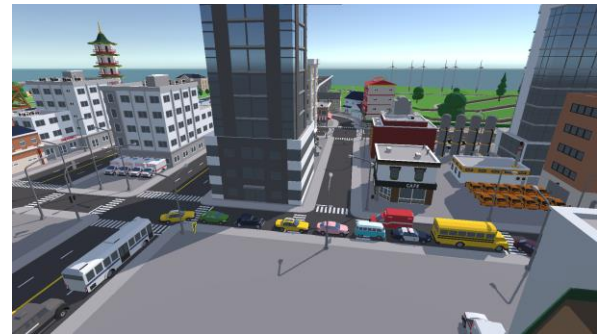
Presents

Evaluation

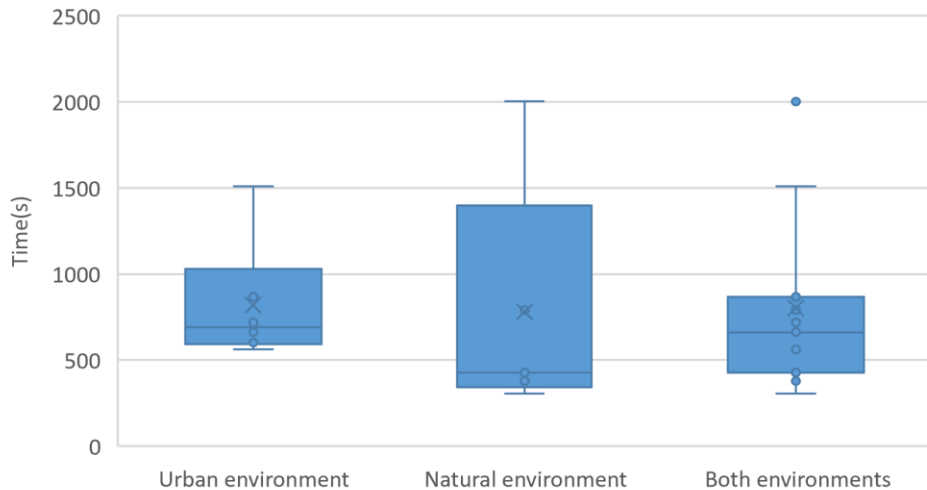
- 12 Non-Gamers, Age 20-25 & 50-55
- Play game + questionnaire

- Results from Urban environment
 - Realistic story
 - Static world, Grid layout
 - Relaxing effect

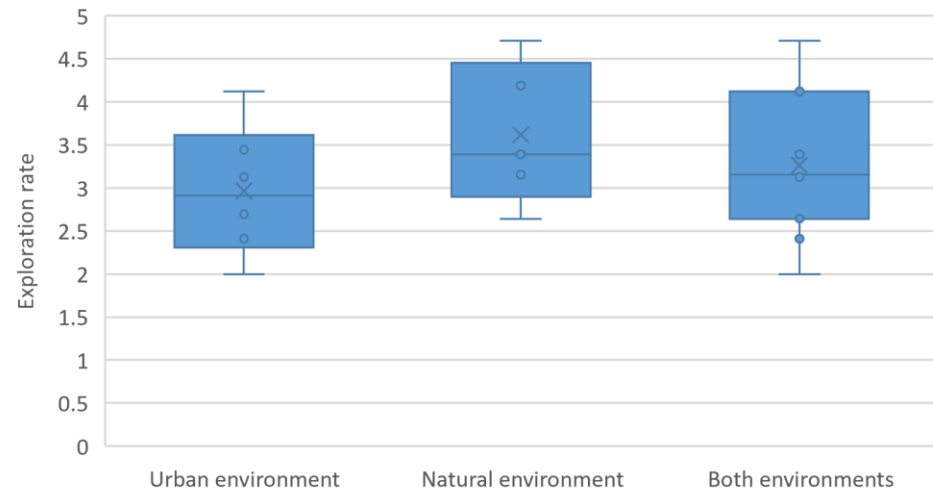
- Results from Natural environment
 - Beautiful environment
 - At the start a lot of information, but not too hard
 - Nice to know where the tasks are solved



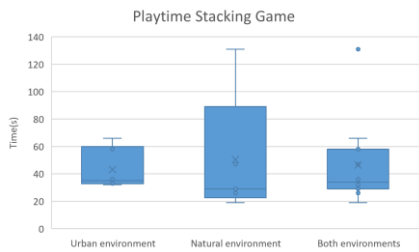
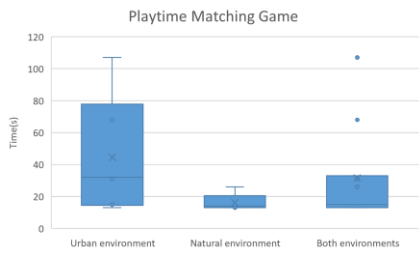
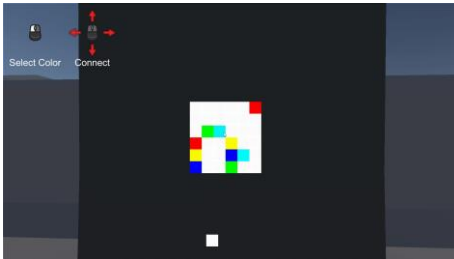
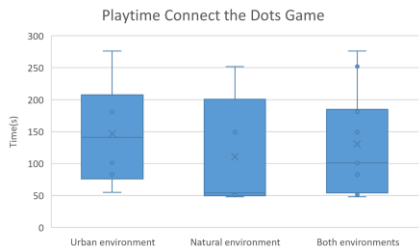
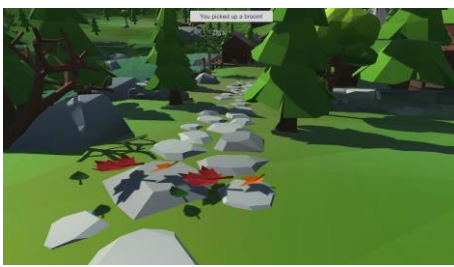
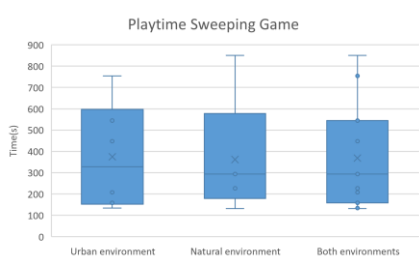
Total Playtime



Exploration



- Avg Playtime Similar, Var High Natural
 - More exploration in Natural (Time Exploring / Time Minigames)
 - Irregular Placement of Tasks
 - Urban environment = Grid layout



- Similar Difficulty
 - Urban, Matching – White car confusion
- One Person Difficulties Natural, Stacking

Conclusion

- Virtual environments are a promising alternative
- Resto Quest
 - 1st person exploration game
 - Support psychological research on the restorative effects of both natural and urban virtual environments.
- Game Loop
 - Exploration
 - Complete task for story/reward
- Evaluation
 - Suitable for Experiment
- Research is currently underway, on the restorative effects of various virtual environments, including those in Resto Quest.



Q&A



Thank you all for Listening!