EmPATHs

Raising awareness and empathy towards vulnerable-to-exclusion users of mobility hubs.

TUM

AAG Annual Meeting 2023

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Global agenda

Provision of services and infrastructure ≠ Equal accessibility for everyone

Individual capabilities

Vulnerable-to-exclusion (v2e) groups

Research question

Can the game EmPATHs raise awareness & empathy of players towards vulnerable-to-exclusion users of mobility hubs?
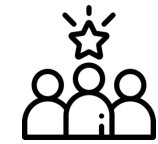
What is a serious game?

- Follow a specific agenda to change players' perspective, improve skills, or encourage certain attitudes.

- Fun & entertaining.

- Can enhance prosocial behavior.

Mobility hubs

- Seamless connections.
- Support multi and intermodal trips.

- Accessible for all.
- Placemakers.
- Improved public realm and attractivity.
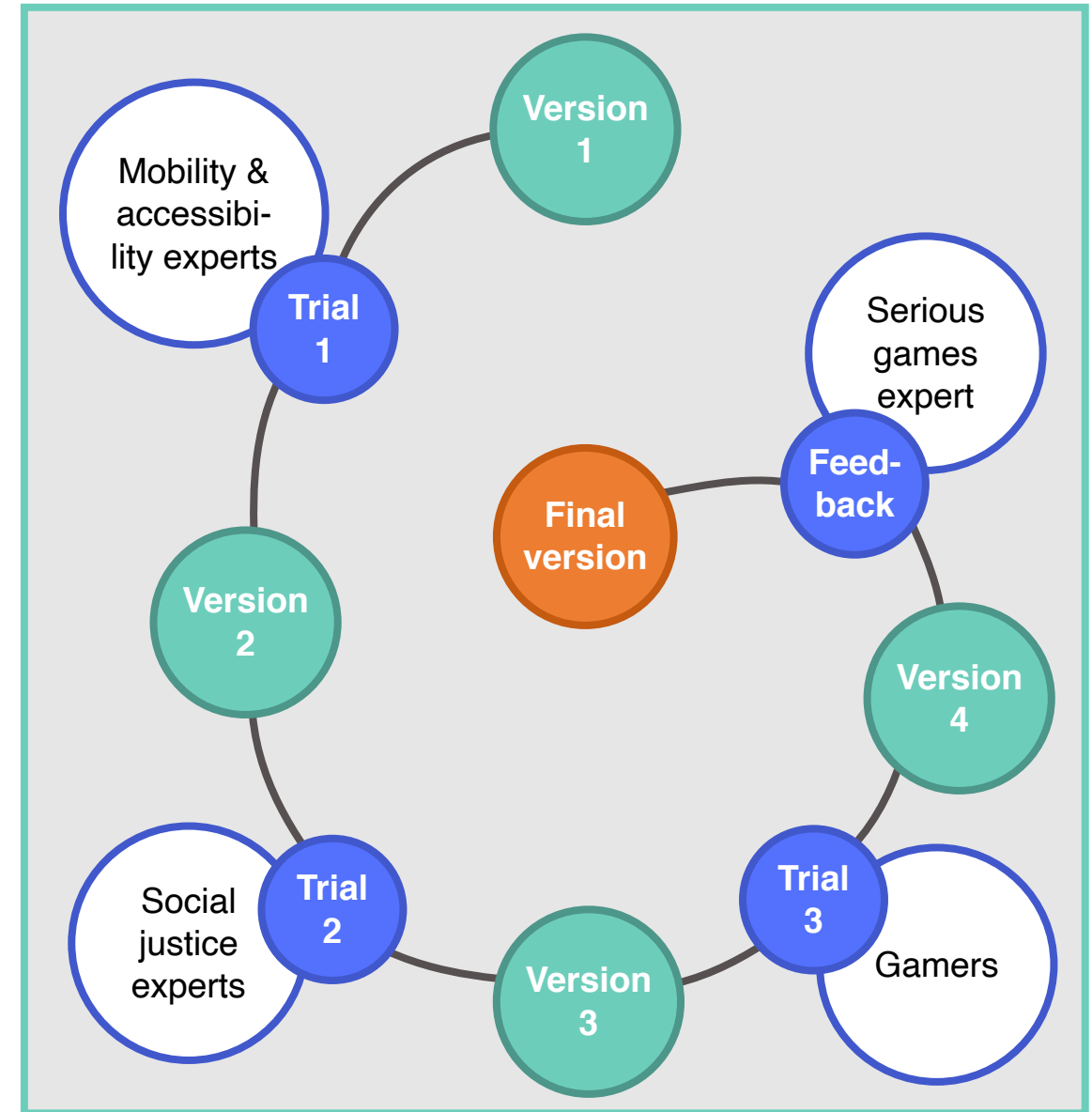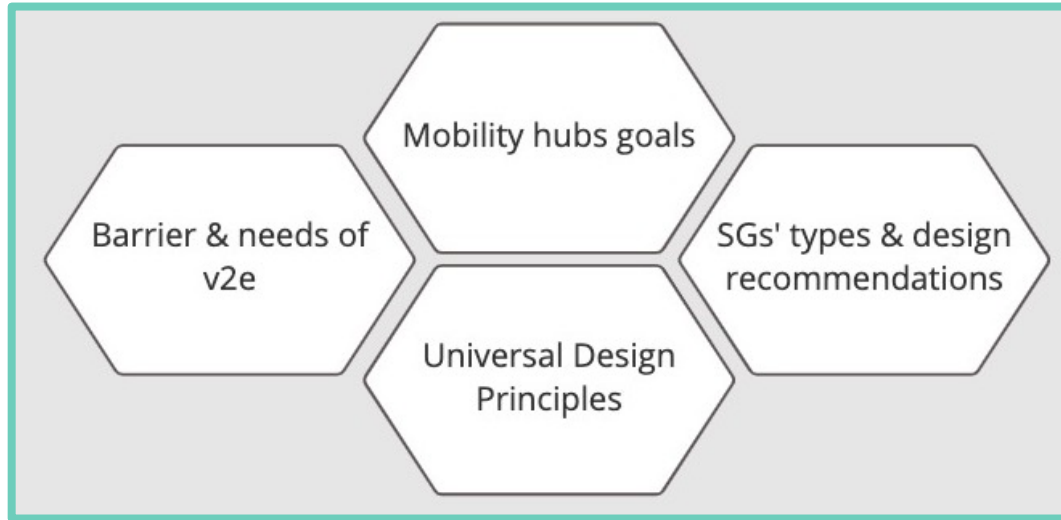
Source: CoMoUK. (2021). *Mobility Hubs Toolkit*. - https://como.org.uk/wp-content/uploads/2021/09/CoMoUK-Mobility-hubs-toolkit.pdf

Application of serious games in various contexts

Source	Field/type of application				
	Urban planning and co-design	Transport	Policy	Empathy	Education and awareness
Belman and Flanagan (2010)				x	
Kocher (2019)					x
Yang et al. (2021)	x	x			
Sousa (2020)	x				
Belman (2016)				x	
Tóth and Poplin (2014)	x				x
Woodcock et al. (2022)					
Buiel et al. (2015)	x	x			
König et al. (2019)		x			x
Olejniczak, Newcomer and Meijer (2020)			x		
Latifi, Monfared and Khojasteh (2022)	x				
Ampatzidou et al. (2018)	x		x		
Scurati, Ferrise and Bertoni (2020)					x
Os (2012)	x				x
Guimarães, Maaß and Gertz (2014)	x	x			

Creating the game

1. Theoretical background

- Mobility hubs goals
- Barrier & needs of v2e
- Universal Design Principles
- SGs' types & design recommendations

2. Iterative design

- Version 1
- Mobility & accessibi-lity experts
- Trial 1
- Serious games expert
- Feed-back
- Final version
- Version 2
- Version 4
- Social justice experts
- Trial 2
- Trial 3
- Version 3
- Gamers

EmPATHs

Goal:

To reach as many destinations as possible playing with different characters.

Wins the player who has played more character cards.
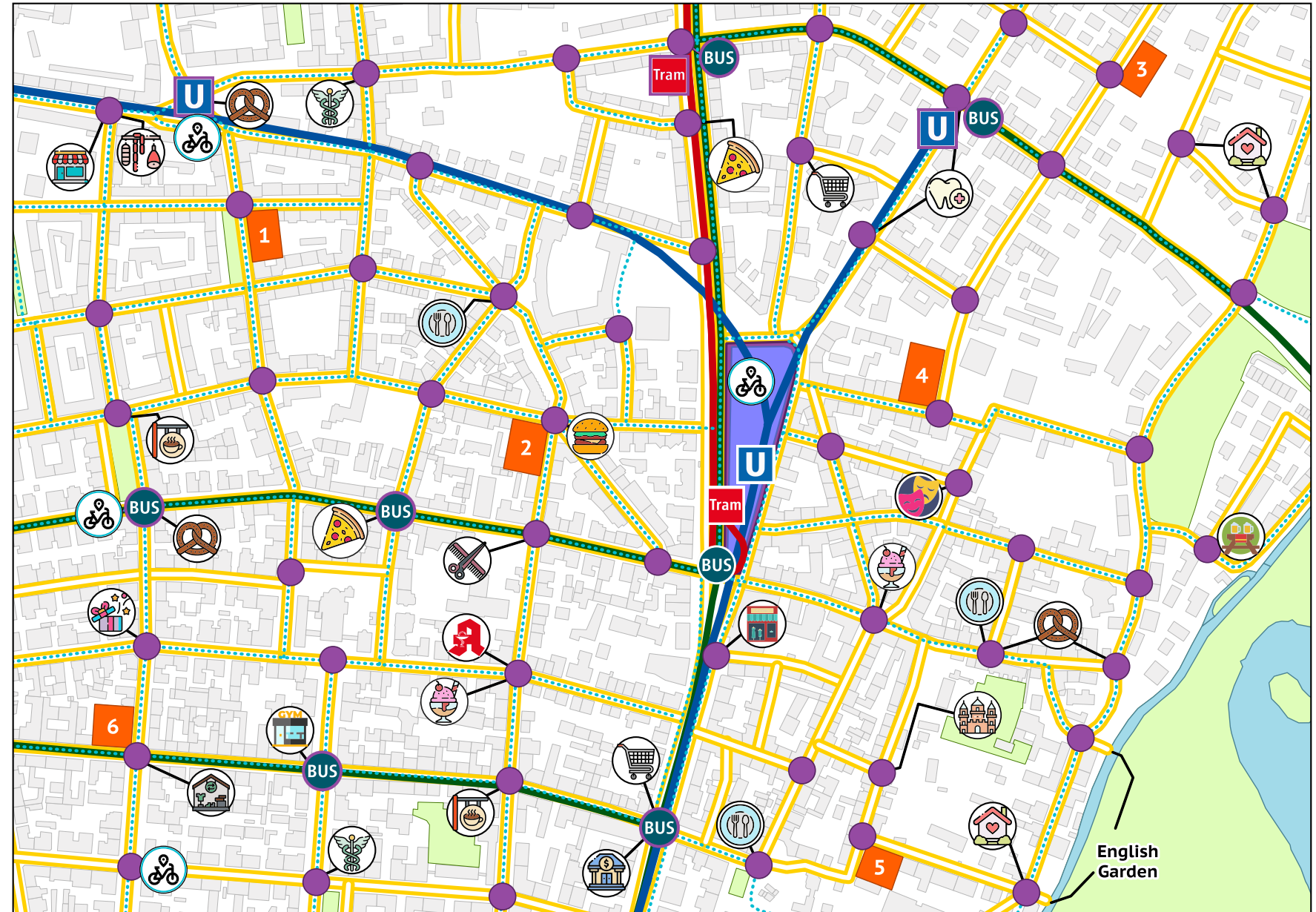
Character cards:

Tell the story of the character with their mobility limitations and needs.
The game has 22 different cards.

You suffered **a brain injury** 4 years ago. Now you **struggle to navigate the streets** even with directional references. What works better for you is visual information that includes landmarks. Those you can easily remember!
The only physical repercussions you have are **hand movement limitations**, making it difficult to grab objects and make precise movements.

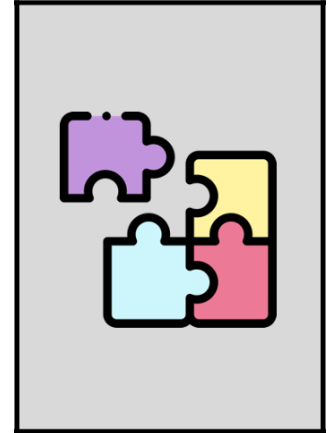| Age	42

Charac-teristics
- Acquired brain injury
- Work better with pictograms and landmarks
- Hand movement limitations

Which transport modes can you use and which elements do you need?
Play all the corresponding cards to unlock a mode

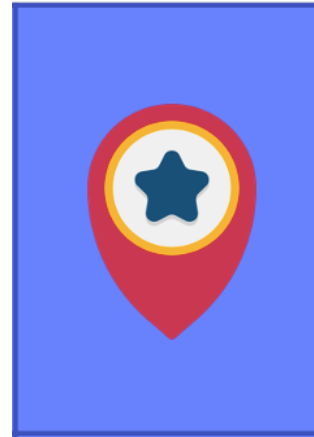| Bike & e-scooter | Accessible bicycles for different needs | Location signage with landmarks | |
| Walking | Location signage with landmarks | | |
| Public transport | Travel guidance (accessible) app | Consistent, simple & big information | Avoid pull/push doors |

Travel guidance (accessible) app

Even, barrier-free & low slope pathways

Applies to: C M P

The streets are crazy right now! Traffic jams everywhere.

Bus lines are affected. Cycling or using an e-scooter can be stressful. Using these modes is not possible this turn.

BUS

Applies to: All CC

Now you have your **own** bike!

If you cannot ride a bike, you can exchange the card with another player for an **element card.**

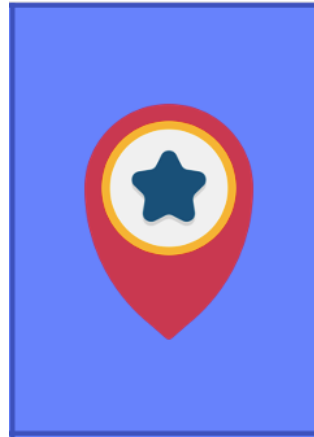**Spec**

Can ch

he pla

You are running out of groceries and need to go to the supermarket

Another day, another workout at the gym!

Applies to: All CC

Now you have your **own** bike!

If you cannot ride a bike, you can exchange the card with another player for an **element card.**

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Destination
...

You are running out of groceries and need to the supermarket

Another day, another workout at the gym!
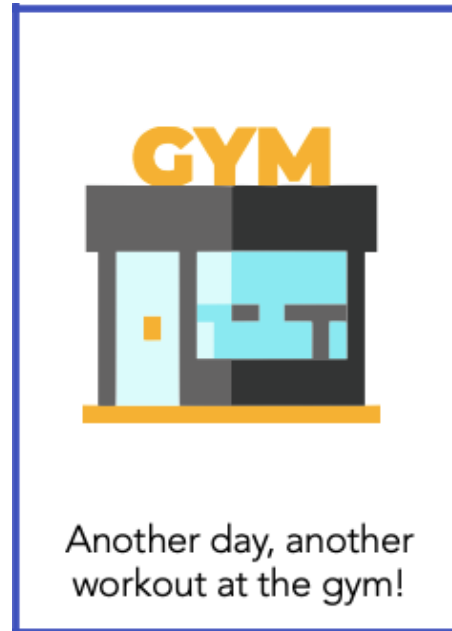
Special cards:
Can challenge or help the player.

Introduction of mobility hubs

SmartHubs

Applies to: All CC

Place a **new mobility hub** at an **existing public transport stop**! Start your trip from there and move 5 spaces on your chosen transport mode without playing any EC .
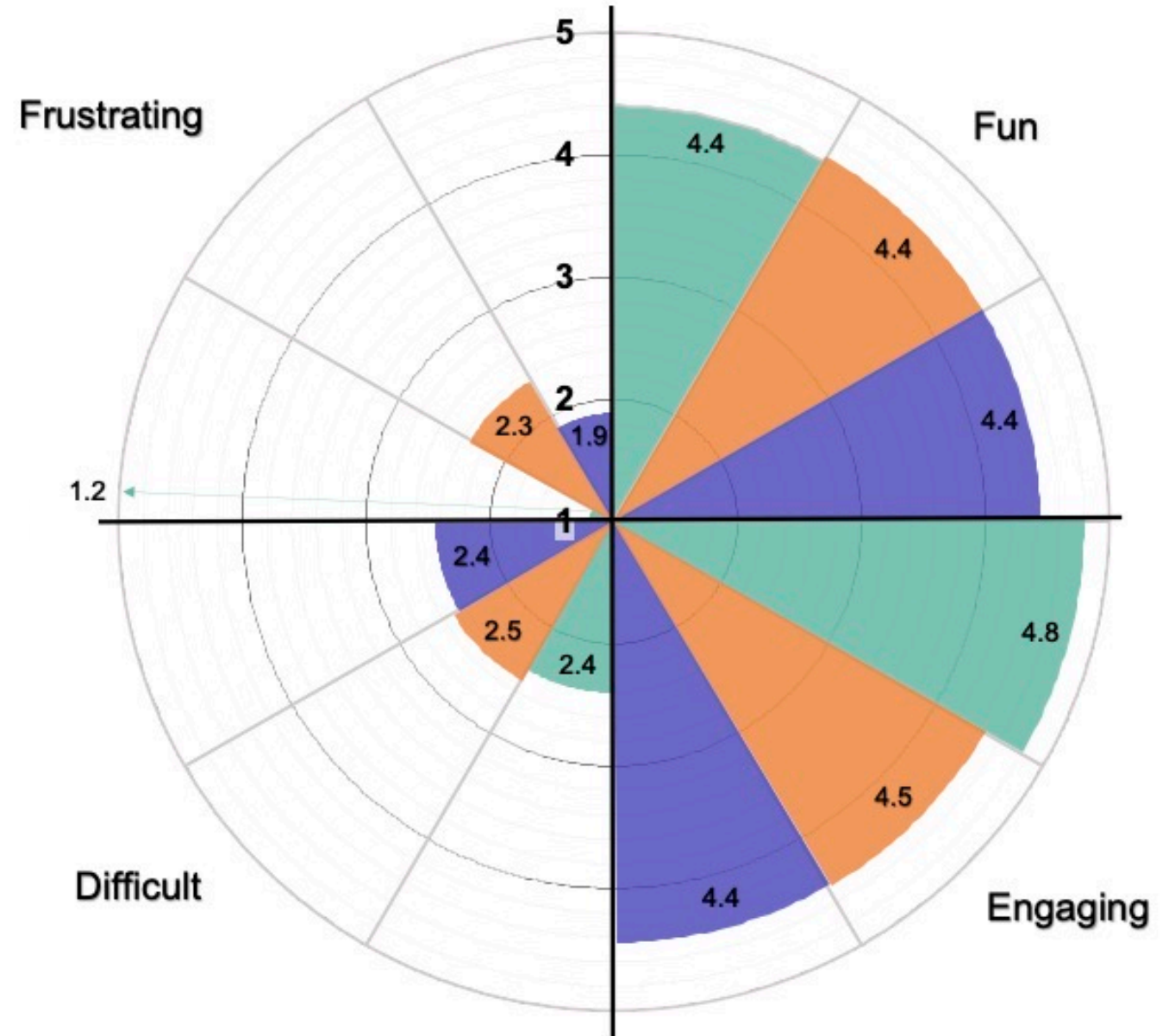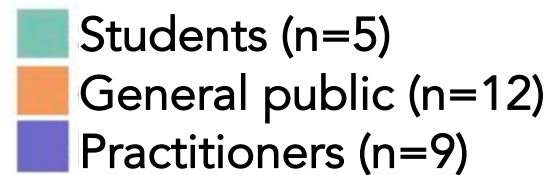
can choose/combine transport des (following the restrictions of CC). The mobility hub remains lable for all players. Its inclusive sign allows everyone to move 5 spaces from here.

You are running out of groceries and need to go to the supermarket

Another day, another workout at the gym!

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26 participants

Evaluation as a serious game

Students (n=5)
General public (n=12)
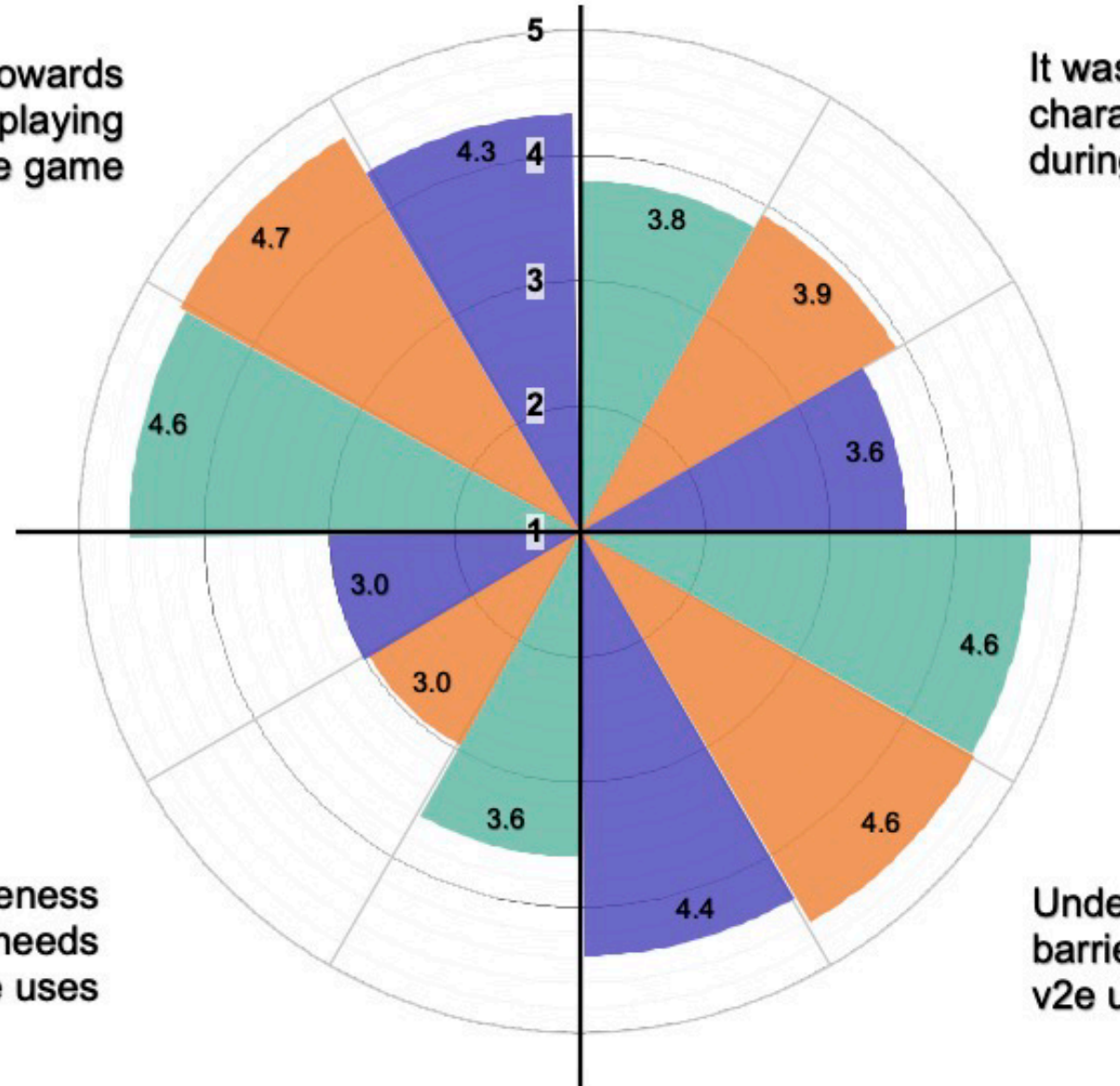Practitioners (n=9)

Evaluation of the the main goal

More empathetic towards v2e users after playing the game

It was easy to place in characters' "shoes" during the game

Previous awareness about barriers and needs of v2e uses

Understanding of the barriers and needs of v2e users

Students (n=5)
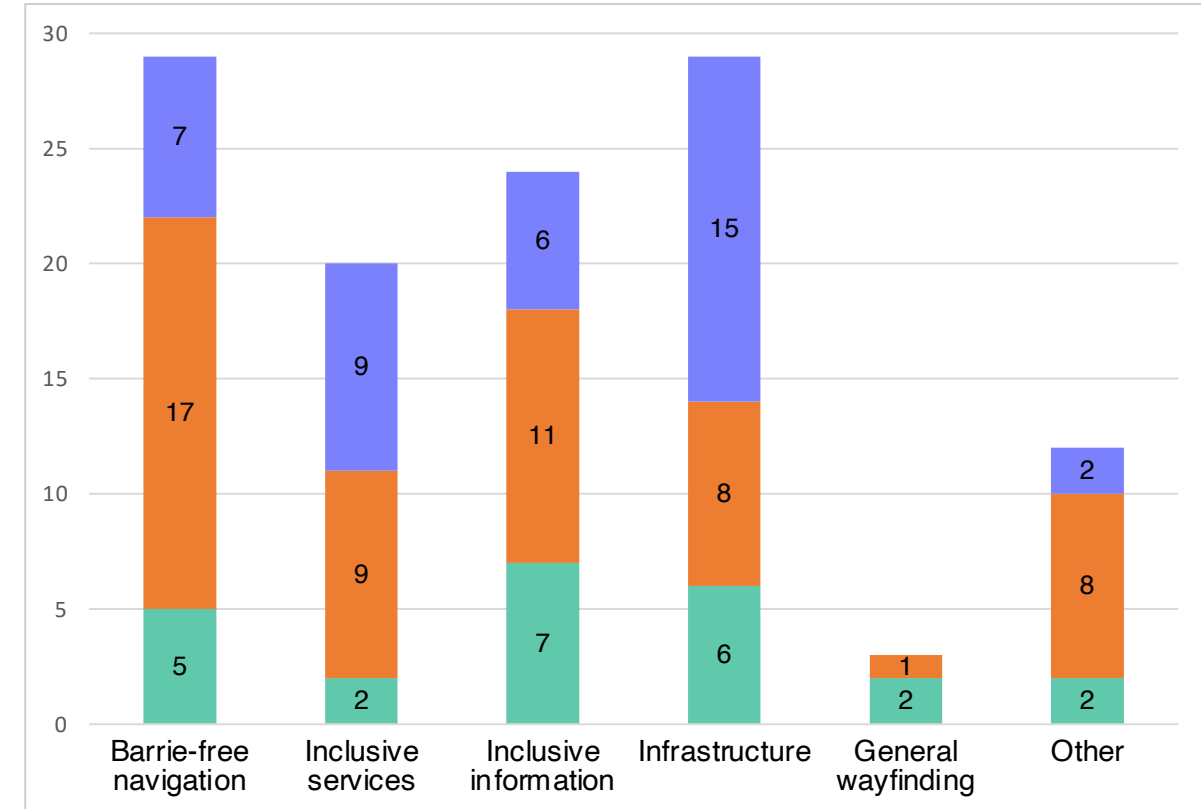General public (n=12)
Practitioners (n=9)

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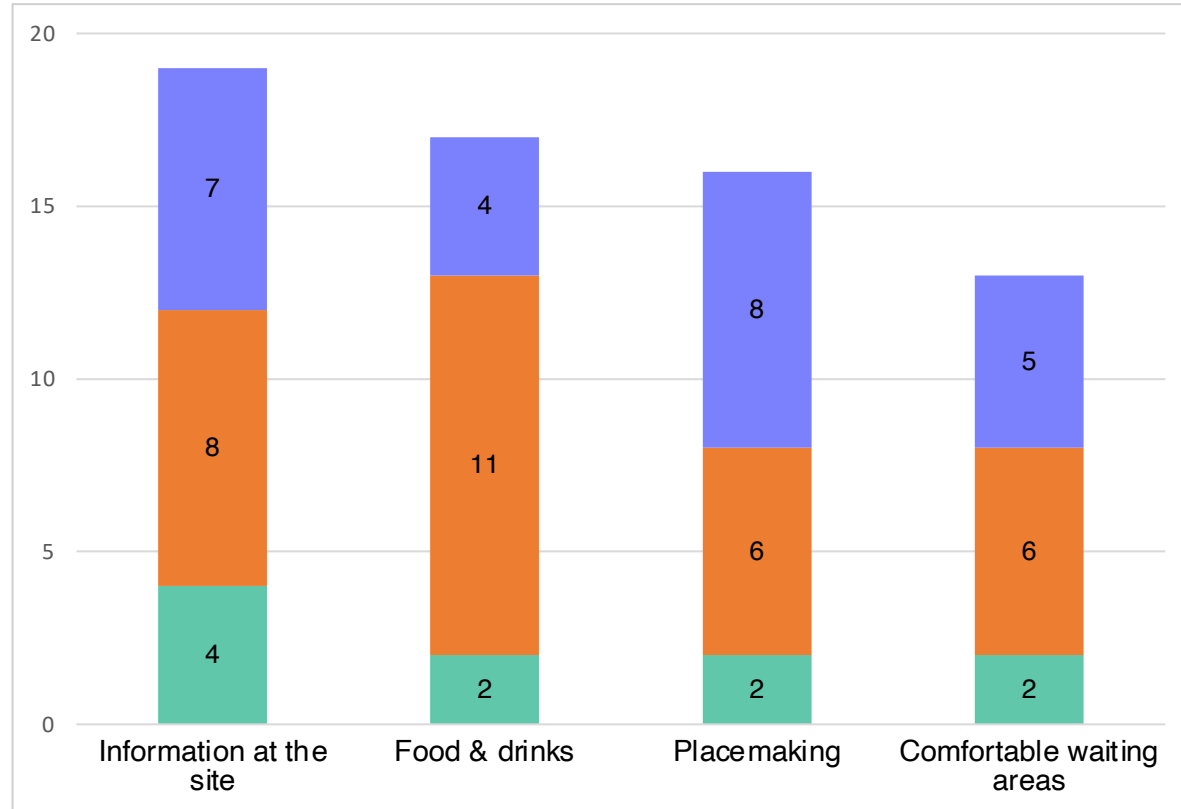**Participants' description of the game**

Pre-game task

After-game task

Mobility hubs' elements

■ Students   ■ General public   ■ Professionals

Back to the research question

Can the game **EmPATHs** raise awareness and empathy of players towards v2e users of mobility hubs?

Yes

- Good evaluation of serious games characteristics ✅

- Awareness & empathy ✅

Further research and applications

- Evaluation of the impact on the long-term.
- Improvement of pre- and after-game task.

- Application in university classes and mobility-related activities open for citizens.
- Time limitation for stakeholders from the planning field.

- Not a co-design tool but a **sensibilization tool.**

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EmPATHs

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