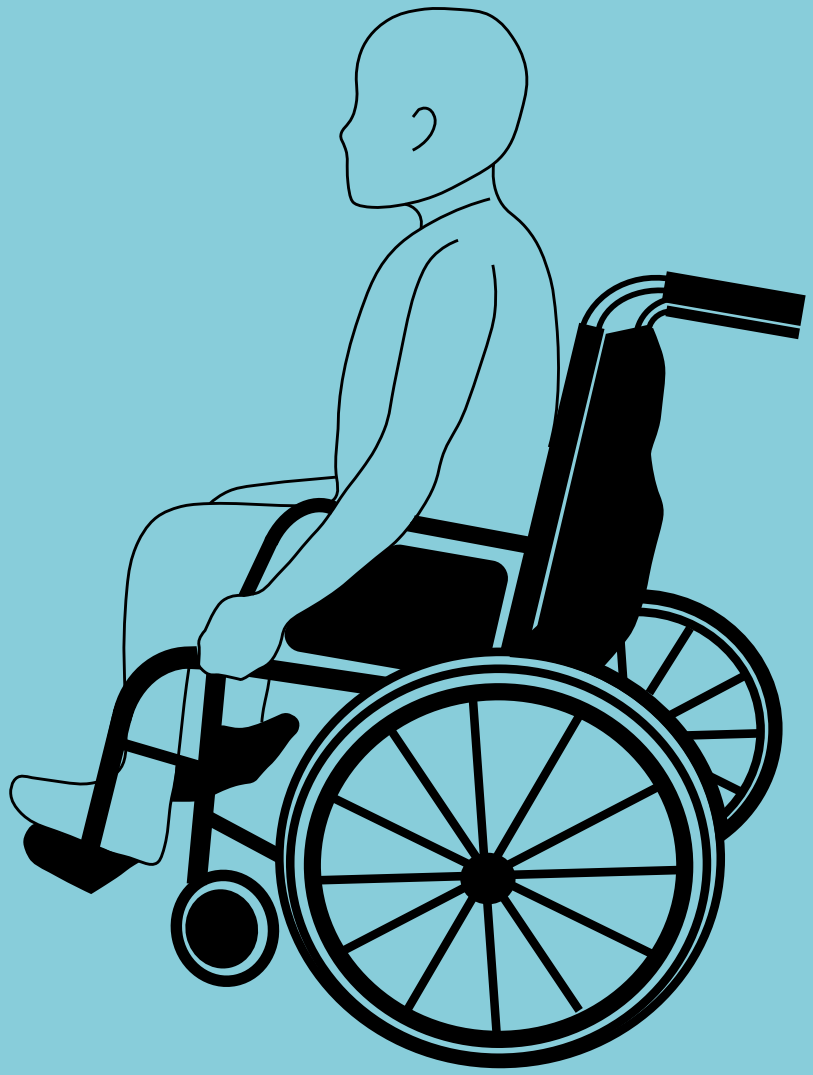
Empathy Tool Manual
Wheelchair



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Welcome

to the the Wheelchair Empathy Tool Manual

Manufacturer Manual [1]

Please carefully read this **Empathy Tool Manual** before using the assisted tools or simulators.

This manual is designed to help you understand the challenges faced by individuals with physical limitations through the use of the Wheelchair as an assisted tool. Please note that you can access manufacturer's user manual via the QR codes above.

The Empathy Library is exhibited within the Material Resource Centre, Room V510, 5/F, Jockey Club Innovation Tower, The Hong Kong Polytechnic University.

Visit **http://empathylibrary.design** or scan the QR codes on the last page of this manual to access the digital version and for more resources.

Warning:

The Wheelchair is intended for mobility assistance and should be used with caution. Exercise care and follow safety guidelines to prevent accidents, injuries, or damage. Avoid using the wheelchair in hazardous environments or engaging in activities that may exceed its capabilities.

Disclaimer:

The use of empathy tools does not equal the full experiences of having a disability. It is best to aim to engage with your target audience, using the tools to prepare better. The Wheelchair and Empathy Tool Manual are not substitutes for professional advice or comprehensive knowledge of mobility requirements. Consult a qualified healthcare professional for proper medical management and therapy if you have any medical condition. Use it responsibly, acknowledging limitations and potential risks. The School of Design, the Material Resource Centre, and the creators of this simulator and manual are not liable for any injuries, damages, or misuse of the simulator.

Citation:

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Contents

1. Description of the Simulator

What disability or impairment does this simulate?

A wheelchair is designed to assist individuals with mobility impairments or disabilities affecting their ability to walk or move independently. Some of the disabilities for which a wheelchair may be used include:

Paraplegia

Paraplegia is a condition characterised by paralysis or loss of function in the lower limbs. Wheelchairs provide mobility and support for individuals with paraplegia.

Quadriplegia

Quadriplegia, or tetraplegia, refers to paralysis or loss of function in both the upper and lower limbs. Wheelchairs are essential for individuals with quadriplegia to move around and maintain independence.

Spinal Cord Injuries

Severe spinal cord injuries can result in paralysis or loss of function below the level of injury. Wheelchairs enable individuals with spinal cord injuries to navigate their surroundings and perform daily activities.

Muscular Dystrophy

Muscular dystrophy is a group of genetic disorders that cause progressive muscle weakness and loss of muscle mass. Wheelchairs assist individuals with muscular dystrophy by providing support and mobility as their condition progresses.

Cerebral Palsy

Cerebral palsy is a neurological disorder that affects muscle control and movement. Wheelchairs can enhance the mobility and independence of individuals with cerebral palsy, depending on the severity of their condition.

Multiple Sclerosis (MS)

Multiple sclerosis is an autoimmune disease that affects the central nervous system, leading to a range of symptoms, including mobility difficulties. Wheelchairs can help individuals with MS maintain mobility and conserve energy.

Amputations

People who have undergone amputations, such as leg amputations, may require wheelchairs during their recovery process. In some cases, individuals with permanent amputations may also use wheelchairs for long-term mobility.

Arthritis

Severe arthritis or degenerative joint diseases can limit mobility and make walking painful. Wheelchairs can provide relief and assist individuals with arthritis in getting around comfortably.

It's important to note that wheelchairs can be customised and adapted to meet the specific needs of individuals with different disabilities. Additionally, some individuals may use wheelchairs temporarily, while others may require them on a long-term basis.

(Photo Credit: Red John on Unsplash)

2. Use & Operation

How to put it on?

1. Push handle
2. Attendant brake
3. Back joint
4. Rear wheel
5. Anti-tippers
6. Cross brace
7. Caster
8. Backrest upholstery
9. Armrest
10. Side panel
11. Seat upholstery
12. Footrest
13. Heel loop
14. Footplate

To use this wheelchair, follow these steps for optimal functionality and safety:

1. Ensure that the brakes are engaged by pushing the brake levers down.

2. Use & Operation

How to put it on?

2 Sit on the wheelchair seat and place your feet on the footrests.

3 Grip the wheelchair's hand rims and use your arms to propel yourself forward or backwards.

4 The best first grip point is at the **11 o'clock position**, and the best final grip point is at the **2 o'clock position.**

5 **Now, you should be ready to start your empathy exercises!**

When undertaking empathy exercises, it's advisable to carry out the training with at least one or perhaps even two assistants. Remember to maintain good posture and engage the brakes when stationary to ensure safety.

3. DOs & DON'Ts

How to embrace and avoid?

DOs

DO make sure both brakes are applied before getting in or out of the wheelchair.

DO avoid steep or uneven surfaces that may cause the wheelchair to tip over.

DO avoid soft surfaces, as the casters may become bogged down.

DO make sure that both feet are safely on the footrests and that clothing is safely tucked out of the way so that it cannot get caught in the wheels.

DO keep both hands on the push handles to control the wheelchair; if you are the attendant.

DON'Ts

DON'T do "wheelies" since you might fall or tip over backwards and suffer a severe injury. (See Image 05)

DON'T stand on the seat of the wheelchair (See Image 06)

DON'T stand on the footplates when getting in or out of the wheelchair. (See Image 07)

DON'T ever use an escalator for transport; use an elevator.

DON'T overload the wheelchair in any circumstance.

DON'T hang anything heavy on the back of the wheelchair that could cause the wheelchair to become unstable, particularly when negotiating inclines.

DON'T allow more than one user at a time.

DON'T use other transport to pull the wheelchair.

DON'T go too fast or turn too quickly.

DON'T go down steps forward, whether solo or with an attendant.

DON'T attempt to lift the wheelchair by any detachable parts. Lifting by means of any detachable parts of the wheelchair may result in injury to the user and/or assistant or damage to the wheelchair.

IMAGE 05: DO NOT do "wheelies"

IMAGE 06: DO NOT stand on the seat

IMAGE 07: DO NOT stand on the footplates

4. Suggested Exercises & Scenarios

How to build empathy with the users?

You can conduct many exercises and experiments with this wheelchair to better understand the daily life and challenges of a wheelchair user. We will suggest a few examples for you to start with; however, to better understand and ultimately become a better designer, you should try to design your own scenarios. The more specific and unique your scenario and experiments are, the more chance your research will lead you to a novel design breakthrough!

First, let's try some simple exercises:

After you familiarise yourself with the basic operation of the wheelchair

1. **Try opening a door from the seated position.** Try this exercise for a range of different doors; take note of the various door handles, door widths and door hinges. Was there any difference in opening a door inwards or outwards, i.e. pulling or pushing the door?
2. **Try moving up and down a ramp;** what do you notice? Try it several times in a row. What do you notice?
3. **Try using the bathroom** (the accessible WC and perhaps the regular WC). You don't actually need to use the toilet but rather simulate several activities, like brushing your teeth, washing your hands, getting in and out of the wheelchair, or reaching the toilet paper. Focus on handles, surface textures, heights of bathroom features and turning circles.

4. **Set up an obstacle course** with cones, bumps and tight turns (you can use any suitable objects). Navigate through the course in a wheelchair, focusing on balance, coordination, and spatial awareness. Be careful, and don't be reckless.

Next, let's try a scenario.

Imagine you are a regular wheelchair student in the School of Design and must get to your class. There are several challenges within this scenario: you may need to **use the elevator to get to your classroom, ask for directions or follow signage to find your way to the classroom, open a door while seated in the wheelchair, manoeuvre your way to your desk, and take out your books and or laptop.**

Throughout the process, try to focus on all the sub-tasks you may need to perform, For example, **pressing the buttons in the elevator, switching on or off a light switch in the classroom, and plugging in your laptop to the wall socket.** Take notice of the time you need to allow for this task, as opposed to if you did not require a wheelchair.

Next, you should try and design your own scenario. Re-read section ***1.1 What disability or Impairment this simulates***. You could try applying one of these conditions to your experiment, then add some specific details to your experiment by combining a hobby and/or a specific task for your user. To help you get started, you could try simulating:

- **a trip on public transportation or**
- **an outdoor activity/adventure or**
- **grocery shopping, or**
- **a workplace simulation and generally interacting with colleagues in a seated position.**

Remember to consider this research tool from multiple perspectives. You can empathise with the primary user in the wheelchair or with the assistant or attendant who may be helping the user. You may think of a design to improve the experience of a person in a wheelchair, like assistive technology, or you may think of the spatial requirements and design affordances for people in a wheelchair, like handrails in a bathroom.

5. Designing for Intersectionality by Combining Empathy Tools

How to build empathy with the users?

As design students, it is essential to recognise that the individuals we are designing for may often have more than one impairment or condition. While the simulators provided in this manual offer valuable insights into specific aspects of the user's experience, it is important to remember that real-life situations can be complex and multifaceted.

To deepen your empathetic design methods and create more inclusive, innovative and original solutions, we encourage you to consider using **a combination of empathy tools** together. By combining simulators, such as wearing the **Aged Simulation Suit** along with a **Wheelchair**, you can gain a more comprehensive understanding of the challenges faced by individuals with multiple impairments or conditions.

By embracing this holistic approach, you will be better equipped to develop designs that address the diverse needs and experiences of your target users. Remember, empathy is at the core of meaningful design, and by continually expanding your understanding and perspectives, you can create truly inclusive and impactful solutions.

Have you thought about using the wheelchair along with:

Pregnancy Suit

Arthritis Simulation Gloves

Vision Impairment Simulation Glasses

These are just some suggestions; you can get creative and try to create any combination of empathy simulators, including your own DIY simulators.

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Reference

1. Karma Mobility. (2023, April 24) *User Manual: Ergo Lite Series*. https://www.karmamobility.co.uk/download/manual_en_ergo-lite-series/

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