



TechSage Tool: Personas for Designing for Individuals Aging with Mobility Impairment

Rehabilitation Engineering Research Center on
Technologies to Support Aging-in-Place for People with
Long-Term Disabilities (RERC TechSage)

TechSageRERC.org

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Summary. The ten personas in this document were developed to aid in the design of technology and environments for individuals aging with mobility disabilities. Personas represent themes of real-life, everyday activity challenges among older adults with long-term mobility disabilities that emerged from an in-home study our team conducted with this population. To preserve the privacy of the individual research participants, persona contents are compiled from multiple sources. Each persona does not represent an individual research participant, but rather a compilation of themes, observations, interview responses and photo data across multiple research participants. When necessary, we supplemented the actual data with creative narratives to further provide the necessary context to support a design exercise. The set of personas are suitable for classroom or instructional usage.

For more information on the development of these personas, see technical report:

Fain, Brad & Farmer, Sarah. (2017). *Development of personas for designing for individuals with mobility impairments* (TechSAge-TR-1703). Atlanta, GA: Georgia Institute of Technology, Rehabilitation Engineering Research Center on Technologies to Support Successful Aging with Disability.

Acknowledgments

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"I always knew this was going to happen one day, I just didn't know it was going to be so soon!"

Independent

Neat

Motherly

Age 55

Occupation Unemployed

Gender Female

Status Married

Location Rural Georgia

Archetype The New Grandmother

Top Motivators

1. Financial Stability
2. Family
3. Independence
4. Health Stability
5. Social Life

Bio

Joan and her husband have lived in their home for the last 30 years. They renovated the house themselves and their children were raised in that home.

Her two adult children have moved out and she loves to see them when they come visit along with her new granddaughter.

Goals

- Keep up with her growing family
- Stay in her beloved home
- Remain independent to move around her home
- Be comfortable in her new power chair

Environment

- Small one story ranch
- Lives with her husband
- Lives in a small town in Georgia
- Has done some minor adaptations, such as clear furniture away from her path of travel

Medical History

- Diagnosed with relapsing-remitting multiple sclerosis in her thirties
- She transitioned to secondary progressive multiple sclerosis when she was 47
- Within the last two years, her disease has progressed to the point where she needs to use a power wheelchair

Abilities & Limitations

- Has reduced upper and lower body mobility
- Now relies on a power chair to get around
- Is very independent and likes to be able to do things herself
- Has difficulty with dexterity

Challenges

- Door frames and some hallways are too narrow to get through without hitting the frames and walls
- Unable to control powerchair in small spaces
- Financially unable to do renovations on her home

Joan

Problem



Design Challenge

Joan has had MS for a number of years, and so she has completed some adaptations to her home, but the need to use a power chair came on quicker than she thought. The chair is large and difficult to maneuver in their small home. Her chair fits through the door frames and hallways, but she has trouble with dexterity and navigating the chair requires a steady hand. Moving through small spaces is difficult and she has damaged a number of the walls and doorframes. Joan's family frequently comes to visit and she is embarrassed of all the scrapes and dents in the walls made by her new chair.

Joan and her husband were unprepared for this change, both mentally and financially. Joan is no longer able to work, and so she and her husband have been struggling on a single salary.

Help Joan feel more comfortable in this chair as her body is changing and find a solution to make it easier to use in her environment so she and her husband may stay in their beloved home.



Social

Independent

Helpful

Age 75

Occupation Retired Doctor

Gender Male

Status Married

Location Suburban Atlanta

Archetype The Charmer

Top Motivators

1. Independence
2. Family
3. Social Life
4. Confidence
5. Financial Stability

Bio

Chris lives in suburban Atlanta with his wife and dogs. Chris and his wife have been married for 46 years and he loves being able to help her by grocery shopping, running errands, and picking up things at the store for her.

Chris loves to socialize and makes friends everywhere he goes. He has a small group of long-time friends that he meets up with to play cards on Thursdays and occasionally meets for lunch throughout the week.

Goals

- Remain independent and social
- Be able to take the car to go places easily and quickly
- Feel more comfortable with his oxygen

Environment

- Lives outside the town center so he usually has to take the car to get errands done
- Loves their house because there are sidewalks he can take his dogs for a walk

Medical History

- Chris was diagnosed with emphysema when he was 57
- Chris’s symptoms increased in his sixties and he required a lot more rest due to his shortness of breath
- He began depending on his scooter for everyday use at age 71
- Must bring oxygen with him

Abilities & Limitations

- Strong upper and lower body strength
- Weak lung endurance
- Unable to stand for long periods of time
- Drives independently
- Requires a scooter to move around

Challenges

- Disassembling and reassembling his scooter to put it in the car is cumbersome and frustrating
- Wearing his oxygen tubes all the time makes him feel self-conscious and not able to be himself
- Feels isolated by his condition

Chris

Problem



Design Challenge

Chris frequently feels like his disability has made him a burden. It is always a big production to go anywhere or do anything. He can't ever be picked up to go anywhere, because most of his friends and family have small cars and his chair has to fit in the vehicle. When he takes his wife out to dinner, she has to wait or help him disassemble his scooter before they can leave.

When Chris does go out, he feels self-conscious of his oxygen and thinks it makes him unapproachable, so he isn't as outgoing and friendly as he wants to be. He has started to feel more and more isolated and confined by his disease.

Help Chris be able to do everyday things with more ease and convenience, while feeling more empowered, capable and confident.

Janice



Private

Independent

Cleanly

Age 55

Occupation Unemployed

Gender Female

Status Single

Location Atlanta

Archetype The Introvert

Top Motivators

1. Independence
2. Privacy
3. Home cleanliness
4. Family
5. Financial Stability

Bio

Janice lives alone with her service dog in Atlanta. She has a caregiver that comes a few times a week to help her clean her apartment and prepare meals for her week.

Janice is a very private person, but she adores her sister and her nieces and nephew, and loves when they come by to visit.

Goals

- Move more easily through her home with the help of her service dog
- Be proud of the look of her home especially when her family comes over
- Get the help she needs from her caregiver without sacrificing her privacy

Environment

- Lives in a fully wheelchair accessible apartment
- Has lots of hallways and doors
- Location gives her access to a number of services and programs that are helpful

Medical History

- Lower body paralysis due to car accident in her 20s
- Started developing rheumatoid arthritis in her 40s
- Arthritis in her hands has developed to severe within the last 5 years

Abilities & Limitations

- Uses a power chair to get around her home
- Arthritis has made it impossible for her to grasp things
- Low range of motion
- Service dog is able to help with a number of things
- Has a caregiver to come do housework and help with meals

Challenges

- Closing doors is almost impossible
- The cords and scarves she uses for her and her dog to close doors are unsightly to her
- Has trouble feeding her dog as the bags are hard for her to open

Janice

Problem



Design Challenge

Janice lives in an apartment with her service dog. She has been paralyzed since she was 23, but more recently has developed severe arthritis in her hands. She is unable to grasp things, but most of the time her dog is able to help her with a lot of her needs. She has a caregiver that comes over to help her clean and prepares her meals ahead of time. Janice appreciates her caregiver, but still likes to have her privacy when she is home. Her dog helps her close doors so that Janice can have some peace and quiet. She has scarves and cords hanging from the doors that the dog can grasp to pull the door shut. She is able to pull the scarves as well, but the cords are too narrow.

Her family comes by to visit once in a while. She is very close with her sister and nieces and nephews, but she does not like the way her home looks with the scarves and cords hanging everywhere and wishes it was a bit more presentable when they stopped by.

Help Janice find a solution to her grasping issue that allows her and her service dog to have privacy and safety, and also allows her to keep her home neat and attractive to guests.



Family-oriented

Caring

Neat

Age 60

Occupation Librarian

Gender Female

Status Divorced

Location Rural Florida

Archetype The Go-getter

Top Motivators

1. Independence
2. Family
3. Cooking
4. Cleanliness
5. Financial Stability

Bio

Lillian has a large family and she prides herself on being the care taker. She has always hosted family dinners at her home once a week. She likes to continue that tradition because she loves seeing her children and grandchildren and spoiling them.

Lillian is proud of remaining independent after her accident.

Goals

- Move through her kitchen more easily
- Continue to entertain her family and have them over for dinner
- Be able to clean up more easily and wash her dishes without help
- Stay in her own home

Environment

- Lives in a one story home
- Has made modifications to make certain things easier for her, such as a bathroom updated for accessibility
- Sink has been updated slightly, but the plumbing does not allow her to fully roll under it

Medical History

- She was in a car accident ten years ago which resulted in a spinal cord injury
- She is paralyzed from the waist down and uses a manual wheelchair

Abilities & Limitations

- Has lost the use of her legs
- Uses a wheelchair to get around her home
- Has strong upper body strength
- Lives alone and takes care of herself independently

Challenges

- Unable to fully move about her home and access all areas
- Cannot utilize sink to wash dishes

Problem

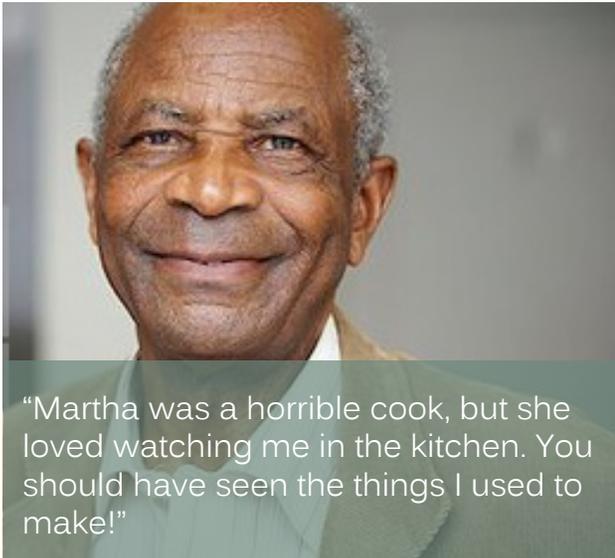


Design Challenge

Lillian was in a car accident 10 years ago, which paralyzed her from the waist down. Determined to remain independent and in control of her life, she has done what she can to make her home more accessible. She prides herself on doing the little things like keeping her home in order and cooking her own meals.

Lillian has made some adaptations to her home so that she can complete house work in her chair. She has only been able to do so much in the kitchen due to the plumbing, and still struggles with the sink. She is not able to reach all the way into the sink to clean all of her dishes. She also has trouble finding enough food storage areas that are low enough for her to reach. She does not want to give up using her kitchen and loves to host dinners for her family. On family dinner nights everyone helps out, but she enjoys being the head of the family and taking on responsibility. She frequently has a number of things to do once they leave and there is always a considerable amount of cleanup.

Help Lillian find a solution that allows her to cook and wash dishes with ease.



Social

Helpful

Kind

Age 80

Occupation Retired accountant

Gender Male

Status Widower

Location Suburban Atlanta

Archetype The Entertainer

Top Motivators

1. Social life
2. Independence
3. Cooking
4. Community involvement
5. Financial Stability

Bio

Jim has always been an avid cook. He used to make dinner for his wife, Martha, when she was alive. After she passed away, cooking was always soothing to him as it reminded him of Martha.

Jim moved into an assisted living home a few years ago, which he enjoys as he has a number of friends in the community.

Goals

- Start cooking again
- Use his small kitchen to make meals other than microwavable food
- Feel more comfortable in the community kitchen
- Be able to make large meals for all of his friends

Environment

- Lives in an assisted living home
- Has a small kitchen in his apartment with a microwave and a refrigerator
- Has access to a full shared kitchen
- Apartment is wheelchair accessible, but counters are still too high to be comfortable

Medical History

- Was diagnosed with Osteoporosis at a young age
- As his Osteoporosis has progressed, he developed the need for a wheelchair

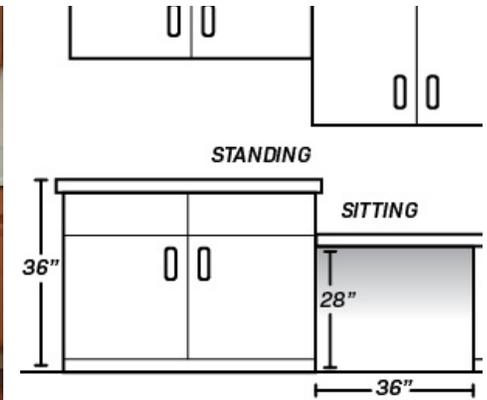
Abilities & Limitations

- Is unable to stand/walk
- Uses a wheelchair to get around his home
- Has strong upper body strength
- Does not need caretakers, is very independent

Challenges

- High counters and cabinets discourage him from cooking
- Large scale cooking in the community kitchen is difficult in a wheelchair
- Counters are long and things are far apart, difficult to move around the community kitchen

Problem



Design Challenge

As Jim has gotten older, he has started using a wheelchair and moved into an assisted living facility. His apartment only has a refrigerator and a microwave, and the shared kitchen he has access to isn't wheelchair accessible. The counters are long and things are at opposite ends of the kitchen which makes it difficult in a chair to be moving back and forth. He has taken to microwaving meals in his apartment as it is easier, but he would love to get back to cooking.

The counters in his own apartment are also too high for him to comfortably make anything, even if he could figure something out that didn't require a stove or oven.

He would love to cook for his neighbors and friends in the large kitchen, but cooking for a large group is daunting especially since the kitchen isn't easy for him to maneuver.

Help Jim get back to cooking and feel more comfortable in the kitchens he has access to in his building.

Patricia



"I love to be in the kitchen! I used to make all kinds of fancy dishes, but I'm still working my way back up to that."

Capable

Independent

Determined

Age 80

Occupation Unemployed

Gender Female

Status Married

Location Rural Alabama

Archetype The Cook

Top Motivators

1. Independence

2. Cooking

3. Family

4. Financial Stability

5. Health Stability

Bio

Patricia lives with her husband and spends a lot of her time in the kitchen cooking. She enjoys hot meals and has always loved to cook.

Cooking is something she values not only as a hobby but also as a bit of independence she still has.

Goals

- Stay in her home
- Continue to cook
- Improve her cooking skills to be what they used to be
- Assure her husband of her ability to cook safely

Environment

- She lives in the ranch that they have owned for 50 years
- She and her husband have made some adjustments to make their home wheelchair accessible, including wider doorways and a ramp into the home
- Kitchen counters are not accessible

Medical History

- Was diagnosed with MS when she was in her 50s
- Has been in a wheelchair since her MS progressed when she was 72

Abilities & Limitations

- She has lost the use of her legs, and also the sensation in her legs
- She uses a wheelchair to get around
- She has strong upper body strength

Challenges

- Has trouble transporting hot pots from the stove
- Assuring her husband she is safe when cooking
- Doing more than one thing at once in the kitchen

Patricia

Problem



Design Challenge

Patricia has continued to cook since her MS progressed and she lost sensation in her legs. It has been harder for Patricia to make meals at the same caliber as she used to. Being in a wheelchair has made it difficult for her to get everything to come out at the same time and all be hot. She has to focus on one thing at a time so her meals are either simple or come out not hot enough. Her husband is willing to help in the kitchen, but Patricia feels that sometimes he is a bit underfoot, and she simply wants to be able to do these things herself.

Patricia frequently is transporting pots from the stove to the counter or sink. To do this, she sets a pot holder in her lap and sets the pot on top. She has lost sensation in her legs which increases how dangerous it is for her to be using her lap to transport food. She may not be aware of how hot things are, or the potholder could slip and she would not know she is burning her legs.

Help Patricia improve her cooking skills and create a safer way for her to maneuver the kitchen, easing her husband's mind.

Maureen



"Well, most of the time I'm fine! Why would I remember to use a grab bar if the last 20 times I was okay?"

Capable

Independent

Elegant

Age 80

Occupation Retired Secretary

Gender Female

Status Divorced

Location Suburban Atlanta

Archetype The Beauty Queen

Top Motivators

1. Normalcy
2. Independence
3. Family
4. Confidence
5. Health Stability

Bio

Maureen take great pride in her appearance. She has always loved doing her hair and makeup and would never leave the house without being fully made up. She loves to smell nice and enjoys pampering herself in the shower.

Her family knows how much she loves soaps and bath gels and they enjoy getting her nice things.

Maureen likes to display all of her products and gifts from her family and uses them all frequently.

Goals

- To continue to use a standing shower
- To feel more stable getting in and out of the shower
- To assuage her family's concerns about her living alone
- To store all of her beauty products accessibly and visibly
- To continue to live her life the way the way she always has

Environment

- She lives alone
- She has a number of grab bars installed in the bathroom
- She has a shower/tub combo that she steps into

Medical History

- Has had three falls within the last year while stepping out of the shower
- Has only sustained minor injuries so far

Abilities & Limitations

- Lives and takes care of herself independently
- Strong upper and lower body strength
- Trouble with balance getting in and out of the shower

Challenges

- Getting in and out of the shower easily
- Assuring her family she is safe and capable of using a standing shower

Maureen

Problem



Design Challenge

Maureen had grab bars installed in her bathroom after she had her first fall last year. She insisted that she would not need them, and now she uses them to store all of her beauty products. Maureen has fallen a number of times in the last year getting out of the shower, yet she still forgets to use the grab bars. They are not instinctive to her, and finds them more useful as shelves.

Maureen insists that most of the time she's fine, and feels silly using a grab bar when she doesn't think she needs it. She only realizes that she is off balance when it is too late.

Help Maureen find a solution in her bathroom that allows her to safely use her shower but also allows her to enjoy bathing and pampering herself without worrying about her balance.



Bio

Arnold spends most days in the yard, tending to his garden and trimming his bushes. He loves to be outside and takes pride in his raised garden beds.

Arnold hates to be off his feet and for him “relaxing” involves doing something enjoyable and staying busy, rather than kicking back.

Medical History

- Underwent hip replacement surgery a few weeks ago
- During the surgery, part of his hip joint fractured which resulted in the need for a wheelchair while he recovered

“This is exactly why I didn't want to get this surgery. I knew it was going to take away from my time in the garden.”

Active

Outdoorsy

Capable

Age 65

Occupation Retired Engineer

Gender Male

Status Married

Location Suburban Atlanta

Archetype The Gardener

Goals

- Keep up with his garden while he recovers
- Continue to do yard work to help his wife
- Stay healthy and get back on his feet as soon as possible

Abilities & Limitations

- He has strong upper body strength and is fully capable from the waist up
- He is unable to stand/put weight on his hip
- He is not accustomed to using a wheelchair and is slightly clumsy in it

Top Motivators

1. Independence
2. Normalcy
3. Health Stability
4. Family
5. Yard upkeep

Environment

- He has a large lawn
- He has built a temporary ramp out the garage door
- His house and lawn are not fully wheelchair accessible
- His wife is able to help with wheelchair

Challenges

- Has trouble gardening as he cannot reach his entire garden bed from his chair
- He cannot reach far enough to trim his bushes and trees, and so he cannot keep up with the yard work

Problem



Design Challenge

Arnold underwent hip replacement surgery last month after putting it off for years. He had been hesitant to get the surgery, knowing it would keep him off his feet and not allow him to do the things he values in his life. He has had some complications so he has been using a wheelchair while he recuperates, which has been frustrating.

Arnold did not realize he was going to be in a wheelchair during this important time of the growing season. He already has lifted garden beds which luckily make it a little easier to tend his garden, but he still cannot reach the full width of the bed. He has a similar issue with his bushes, as he cannot reach the full height to trim them back. Arnold is only in a wheelchair for a short period of time, but he needs a solution that will work for him now.

Help Arnold keep up with his garden and lawn, but find a cost effective solution that makes it worth the short few months of use.



"I can't believe that my life has changed so much. I used to spend every day outside, now I'm lucky if I can get a window open."

Introverted

Private

Outdoorsy

Age 78

Occupation Retired Pilot

Gender Male

Status Single

Location Rural North Carolina

Archetype The Outdoorsman

Top Motivators

1. Fresh air
2. Privacy
3. Health Stability
4. Independence
5. Family

Bio

Ben loves to be outside, he was always an avid camper and fisher. He believes fresh air and sunshine are the two most important things in life. Ben does not have a big family, and only sees his nieces and nephews once in a while.

He is a rather private person and does not mind the solitude. He has always felt more comfortable being alone and in the woods than surrounded by a lot of people.

Goals

- Enjoy the summer months with the doors open
- Feel more in tune with the outside in his everyday life
- Remain somewhat independent

Environment

- He lives in a fully wheelchair accessible home
- He has a small back porch that needs repairs before he can use it
- He lives in an active neighborhood with lots of neighbors

Medical History

- Ben was diagnosed with Parkinson's disease when he was in his 50s
- Since his diagnosis, his disorder has progressed to advanced Parkinson's disease and he now requires a wheelchair to get around.

Abilities & Limitations

- Cannot bend very far at the waist, which limits his range of motion
- Dependent on a wheelchair to get around
- Decent upper body strength
- Problems with coordination and dexterity

Challenges

- Has trouble propping open the back door
- Opening and closing his blinds every morning and night is difficult
- Cannot open windows
Does not like people looking into his house, especially at night

Ben

Problem



Design Challenge

Since his Parkinson's disease has progressed, he has depended on a wheelchair to get around and is not able to get outside unless he has help. Ben has a caregiver come a few times a week, but he mostly needs her to do the necessary things like cooking and cleaning for him. He feels like asking her to take him outside is less important than most of the other things she has to do, but it would make him a lot happier to have more fresh air and sunshine in his life.

Ben keeps his blinds closed at night for privacy, but opens them every morning to get the sunshine in. He is not able to open his windows by himself as they are too high, but can occasionally prop open his back door with some difficulty to get the fresh air in.

Help Ben feel more in tune with the outdoors without requiring too much additional assistance.

Wendy



"I love being involved and active, but it can be hard sometimes to feel confident when you have to plan your bathroom trips."

Social

Independent

Dignified

Age 77

Occupation Retired teacher

Gender Female

Status Single

Location Urban Atlanta

Archetype The Networker

Top Motivators

1. Independence
2. Social Life
3. Health Stability
4. Community Involvement
5. Financial Stability

Bio

Wendy is a retired high school teacher who loves keeping up with her friends in person and through social media.

She enjoys being an active member of her community by attending meetings and activities throughout the year.

Goals

- Keep up with her social life and stay connected with her friends
- Leave the house without worrying about how she will use the bathroom while she's out
- Be an active member of her community and get more involved

Environment

- Lives by herself
- Owns a single story home which is wheelchair accessible
- Lives in a small neighborhood in urban Atlanta

Medical History

- Lost the use of her legs due to polio when she was a small child
- She was diagnosed with post-polio syndrome as an adult, which affects her strength
- Struggles with high cholesterol and arthritis in her hands

Abilities & Limitations

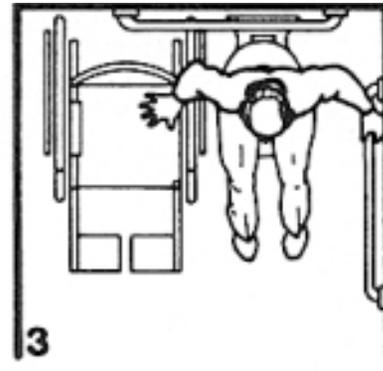
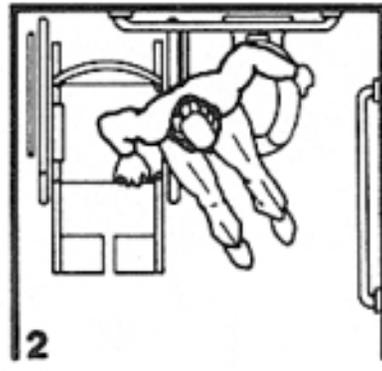
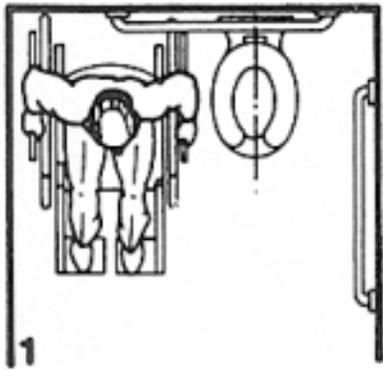
- Has lost the use of her legs
- Is able to use her hands and arms
- Has weakened upper body strength and cannot lift herself from her chair
- Is independent and lives alone
- Is able to drive

Challenges

- Toilets are too tall and her arms are not strong enough to lift herself
- Struggles with using the bathroom outside her own home
- Must purchase disposable containers for her bathroom use and it gets expensive

Wendy

Problem



Toilet transfers require upper body strength from the user to pull themselves out of their chair and onto the toilet seat.

Design Challenge

Wendy has trouble transferring herself to a toilet independently. Most toilets are too tall and she does not have the upper body strength to use grab bars for assistance. Instead, she brings her chair close to the toilet, unbuckles her seat belt, pulls down her pants, and leans over to relieve herself in a disposable plastic container. She then disposes the waste into the toilet and throws the container away.

This method leaves Wendy feeling undignified while she is using the bathroom, and it also restricts her clothing options as she must consider using the bathroom every time she shops for a new pair of pants or skirt.

The plastic containers are purchased in bulk and are stored in the bathroom near the toilet. When she goes out she must remember to bring some with her.

Explore a method of disposing waste into the toilet that allows Wendy to feel empowered, to have more freedom to choose her clothing without considering her bathroom usage, and is more efficient and cost-effective.

