Understanding The Role Of Shared Autonomous Vehicles in Supporting Aging Populations

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Background

U.S. population aged 65 and older increased by 3.1% (reaching 61.18 million) between 2020 and 2024

By 2030, one in five Americans will be 65 years or older

My study targeted participants aged 55 and older living in Washington, Oregon, and Texas

Transportation Challenges for Older People

- Physical and Health Factors
- Built Environment
- Travel Cost
- Safety Concerns
- Accessibility Constraints
- Driving Cessation

Data Collection

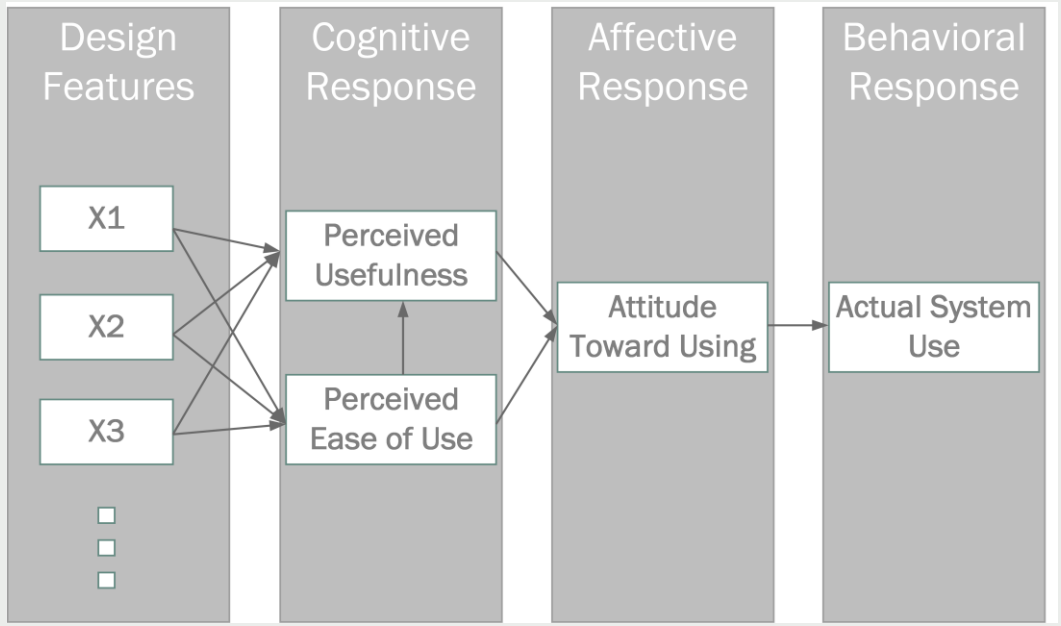
- Survey of 157 adults aged 55+ in State of Oregon, Washington, and Texas
- Conducted via community centers, online platforms, PSU newsletter, LinkedIn
- Includes 26 questions, both closed- and open-ended
- This presentation is focused on qualitative analysis of open-ended survey responses
- 66 valid open-ended responses analyzed

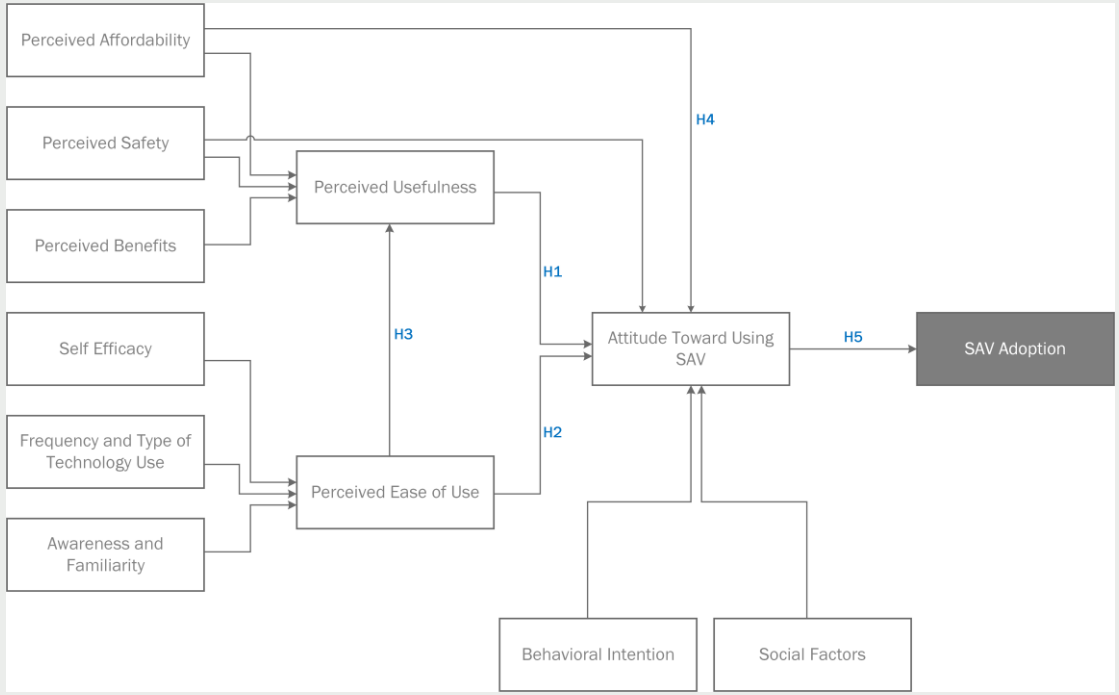
Analytical Approach

Technology Acceptance Model

NLP techniques

Thematic analysis





Analysis Process

Iterative coding & interpretation

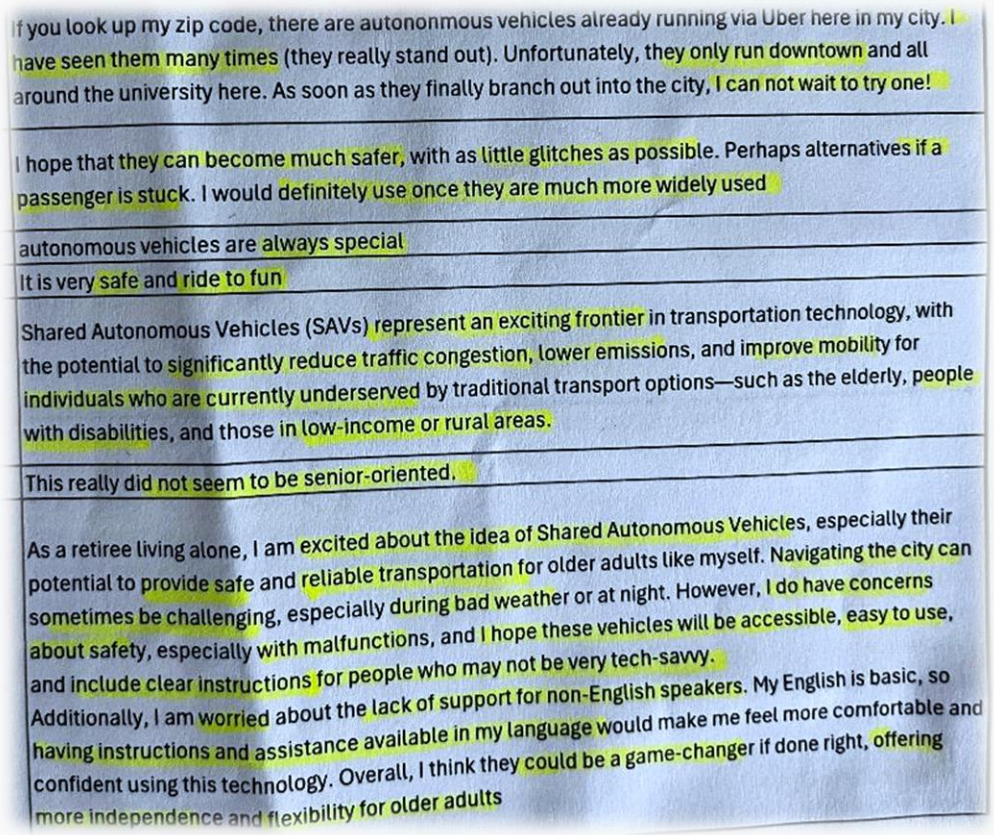
Open coding

Axial coding

Selective coding

Tools: Manual Coding + Dedoose (qualitative) + R (NLP, LDA, sentiment analysis)

Open Coding



If you look up my zip code, there are autononmous vehicles already running via Uber here in my city. I have seen them many times (they really stand out). Unfortunately, they only run downtown and all around the university here. As soon as they finally branch out into the city, I can not wait to try one!

I hope that they can become much safer, with as little glitches as possible. Perhaps alternatives if a passenger is stuck. I would definitely use once they are much more widely used

autonomous vehicles are always special

It is very safe and ride to fun

Shared Autonomous Vehicles (SAVs) represent an exciting frontier in transportation technology, with the potential to significantly reduce traffic congestion, lower emissions, and improve mobility for individuals who are currently underserved by traditional transport options—such as the elderly, people with disabilities, and those in low-income or rural areas.

This really did not seem to be senior-oriented.

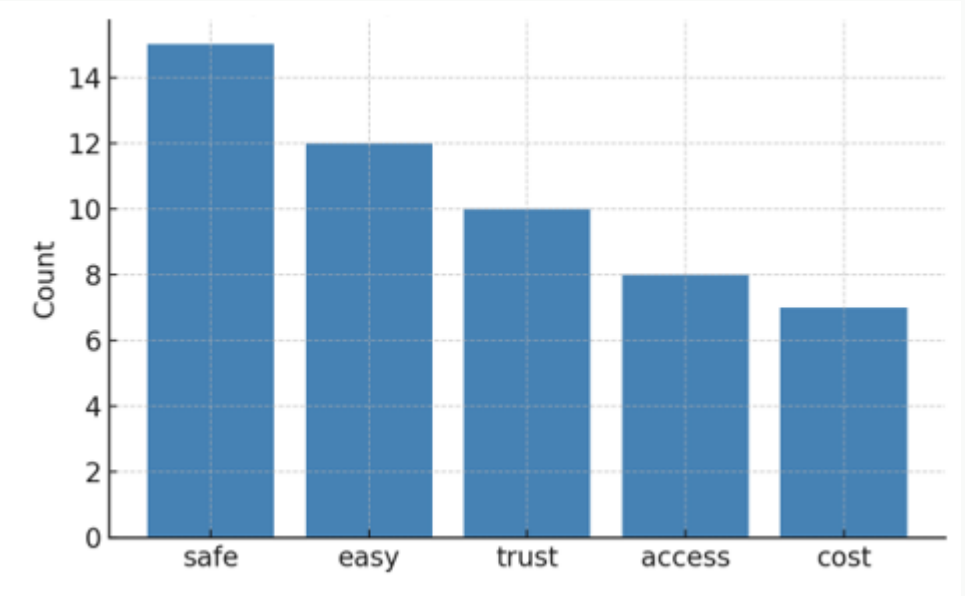
As a retiree living alone, I am excited about the idea of Shared Autonomous Vehicles, especially their potential to provide safe and reliable transportation for older adults like myself. Navigating the city can sometimes be challenging, especially during bad weather or at night. However, I do have concerns about safety, especially with malfunctions, and I hope these vehicles will be accessible, easy to use, and include clear instructions for people who may not be very tech-savvy.
Additionally, I am worried about the lack of support for non-English speakers. My English is basic, so having instructions and assistance available in my language would make me feel more comfortable and confident using this technology. Overall, I think they could be a game-changer if done right, offering more independence and flexibility for older adults

Axial Coding

Coding Example

Data Overview

TAM Construct	Frequency
Perceived Usefulness	18
Perceived Ease of Use	9
Attitude Toward Use	21
Behavioral Intention to Use	18



Themes by TAM Framework

Key Themes

Perceived Usefulness

Benefits: safety, time savings, independence, lower costs

Example: “I’d sell my car in a heartbeat if SAVs are safe”

Limits: rural access, impact on taxis/walking/cycling

Key Themes

Perceived Ease of Use

- Pros: accessibility support for older adults
- Cons: confusing interfaces, digital literacy challenges
- Barriers: affordability, bad weather performance
- Call for intuitive, multilingual design performance

Key Themes

Attitude Toward Use

Optimism: excitement, future-oriented benefits

Conditional: depends on safety, reliability, backup plans

Skepticism: rejection, fear, distrust of “machine-caused” accidents

Key Themes

Behavioral Intention

Adoption for: social benefits, mobility, equity, safety

Safety fears, distrust, discomfort with stranger and technology

Positive shift with direct exposure

Take Home Message

The result of my study shows that older adults see SAVs as a tool for their independence, but adoption depends on safety, trust, and accessible design.

Future Research Directions

- **Diverse Populations & Geographies**
- **Behavioral Experiments** (Future work could incorporate real-world trials or simulated SAV rides with older adults)
- **Longitudinal Studies** (Longitudinal research could track how attitudes shift as SAV technology matures, becomes more visible in communities, and as older adults gain direct exposure to pilot programs.)

THANK YOU

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