

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

Study Purpose:

We are exploring the impact of Shared Autonomous Vehicles (SAVs) on the travel choices of older adults. This study aims to understand how SAVs can enhance the accessibility, mobility, and quality of life of older individuals by identifying potential benefits and barriers.

About Shared Autonomous Vehicles:

SAVs are self-driving vehicles designed to be shared by multiple passengers, aiming to reduce privately owned vehicles, cut transportation costs, alleviate traffic congestion, and lessen environmental impact. Examples include Waymo One, Cruise Origin, EasyMile EZ10, and Olli by Local Motors.

Win a \$15 E-Gift Card!

Introduction:

Hi! I'm Sara S. Urbina, a Ph.D. student in Urban Planning at Portland State University, guided by my advisor, Dr. Liming Wang. We need your help with important research!

Participation:

Age: 65 or older
Time: 30 to 45 minutes
Incentive: Chance to win one of twenty \$15 e-gift cards upon completion! Here is the link/barcode to access the survey! We appreciate your time and insights.

Privacy

Your participation is voluntary, and all security measures will be taken to protect your identity and information.

Contact: ssu2@pdx.edu

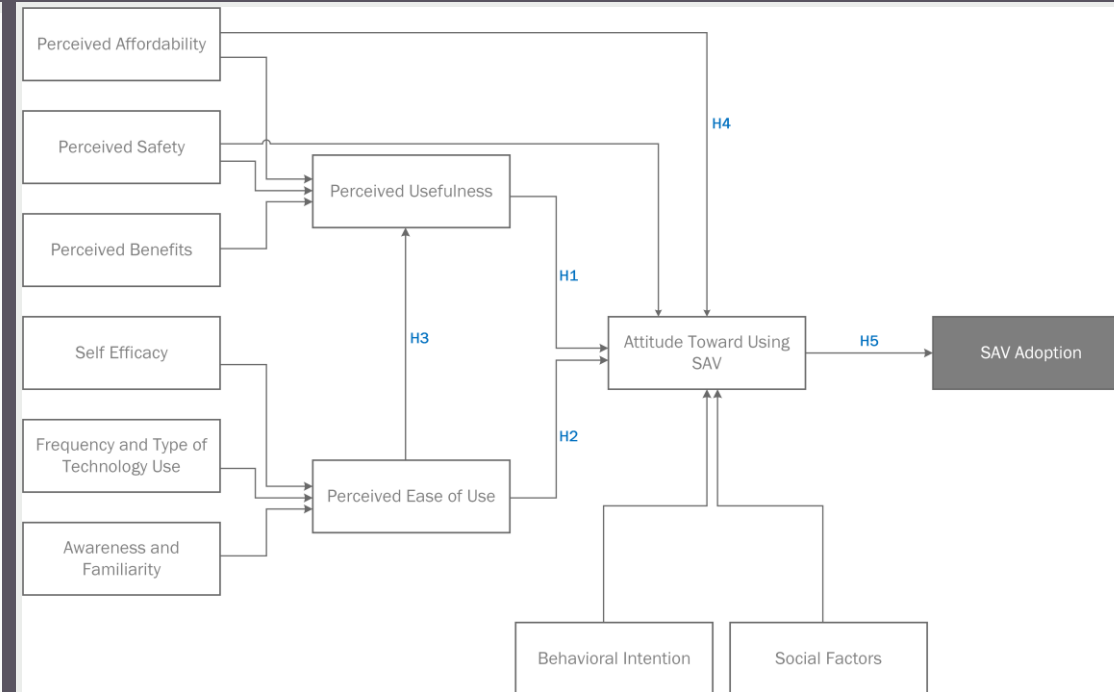
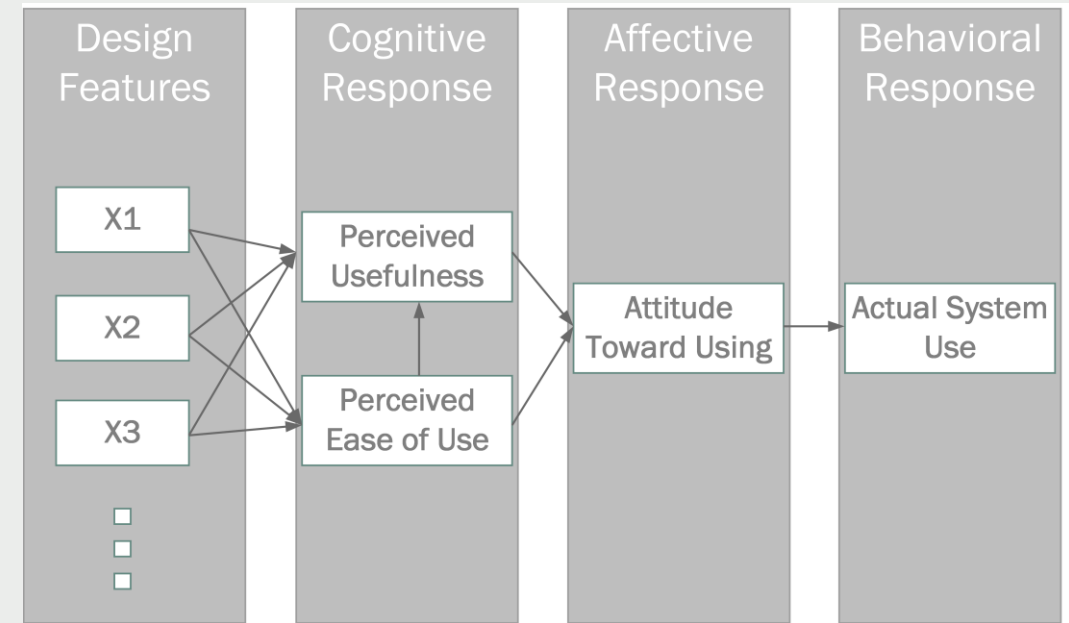


Analytical Approach

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 autonomous 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.

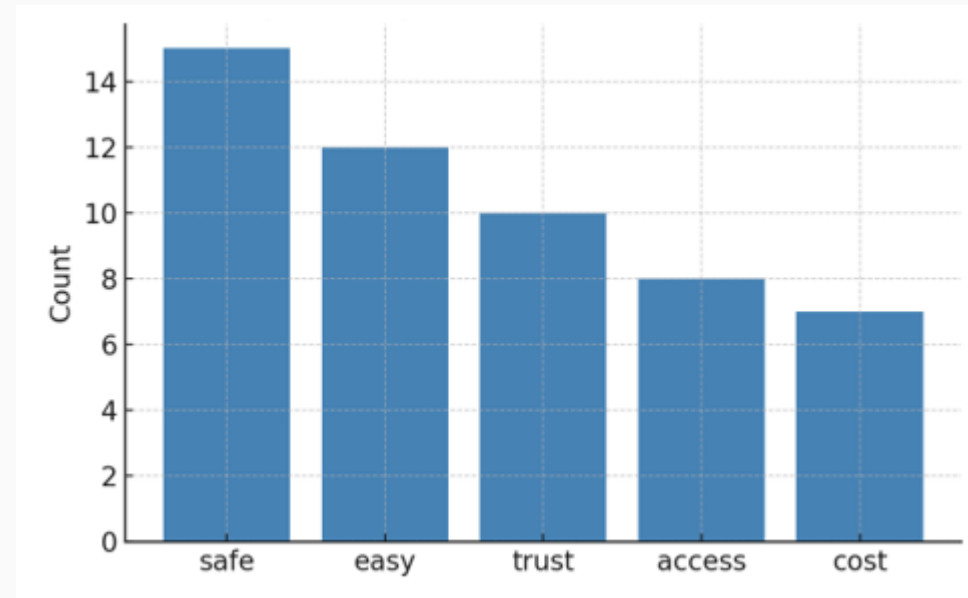
Additionally, I am worried about the lack of support for non-English speakers. My English is basic, so having instructions and assistance available in my language would make me feel more comfortable and confident using this technology. Overall, I think they could be a game-changer if done right, offering more independence and flexibility for older adults

Axial Coding

Disruption to Existing Transportation Services
Safety Benefits and Accident Reduction
Uncertainty or Ambivalence Concerns About Ability to Handle New Technology
Traffic Efficiency Benefits
Equity and Inclusive Mobility
Optimism and Enthusiasm for SAVs
Environmental Benefits
Innovative Use
Cost and Affordability
Convenience
Pedestrian and Cyclist Safety
Safety and Accident Concerns
Distrust and Skepticism
Limited Geographic Availability and Access in Rural Areas
Data Privacy and Security Concerns

Coding Example

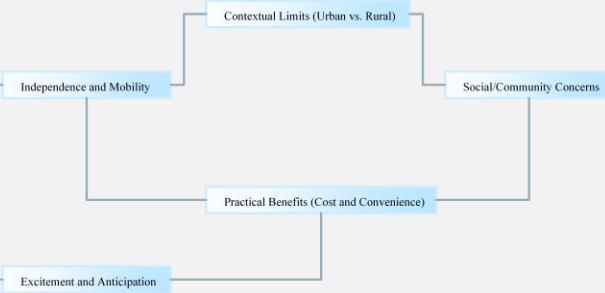
TAM Construct	Frequency
Perceived Usefulness	18
Perceived Ease of Use	9
Attitude Toward Use	21
Behavioral Intention to Use	18



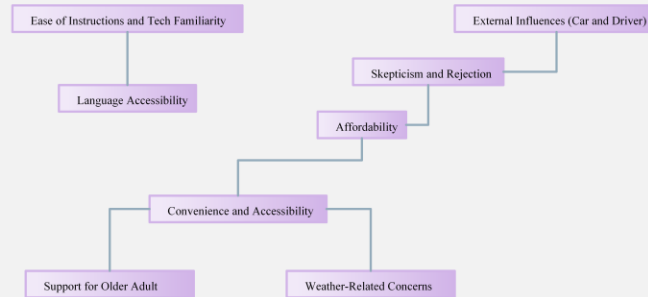
Data Overview

Cognitive Response

Perceived Usefulness of SAVs Theme

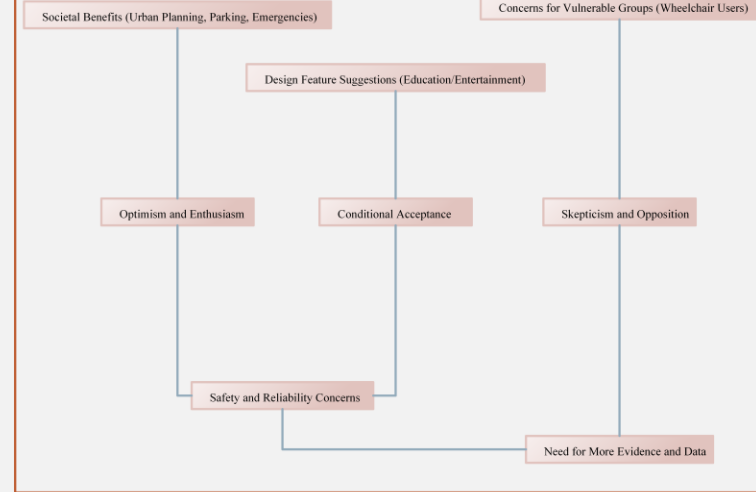


Perceived Ease of Use of SAVs Theme



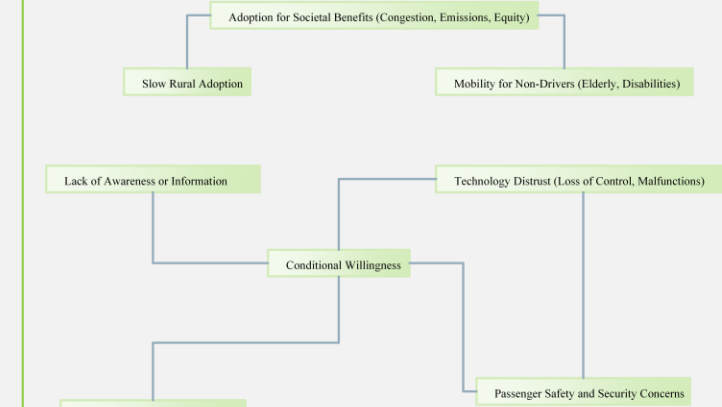
Affective Response

Attitude Toward Use of SAVs Theme



Behavioral Response

Behavioral Intention Toward Use of SAVs Theme



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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