POZNAN UNIVERSITY OF TECHNOLOGY

FACULTY OF COMPUTING
AND TELECOMMUNICATIONS

Function Discoverability and Perceptual Accessibility in Interfaces for Adults Aged 60+: Task-Based UX Study

Julia Manikowska, Julia Samp, Piotr Lukasiak

Institute of Computing Sciences, Faculty of Computing and Telecommunications, Poznan University of Technology

Presenter: Julia Manikowska, BEng in Computer Science
julia.manikowskaa@gmail.com

Presenter: Julia Anna Manikowska

- Contact: julia.manikowskaa@gmail.com
- Currently pursuing a master's degree in Computer Science at Poznan University of Technology, specialising in Games and Internet Technologies. Received a bachelor's degree in Computer Science from Poznan University of Technology, Poland, in 2025
- Professional experience includes, among others, a one-year internship at GSK
- Certified specialist in the WCAG (Web Content Accessibility Guidelines) Standard

Motivation

Ageing populations increasingly rely on digital services, making usability and accessibility for adults 60+ a growing social and economic issue [1].

Older adults often struggle with hidden actions, icon-only controls, and visually complex layouts.

Interaction can involve increased cognitive effort, uncertainty, error risk, and frustration, which may lead to reduced use of digital services [2].

[1] J. R. Beard and D. E. Bloom, “Towards a comprehensive public health response to population ageing,” The Lancet, vol. 385, no. 9968, pp. 658–661, 2015.
[2] T. L. Mitzner et al., “Older adults talk technology: Technology usage and attitudes,” Computers in Human Behavior, vol. 26, no. 6, pp. 1710–1721, 2010.

Methodology & Data

- The study combined quantitative measures (task difficulty ratings 1-5, need for assistance: Yes/No, and UI legibility: Yes/No) with qualitative data from open-ended participant feedback on difficulties, emotions, and design improvement suggestions.
- Non-probabilistic sampling was used. The main group consisted of older adults aged 60+, while a smaller younger group was included for comparison in selected analyses.

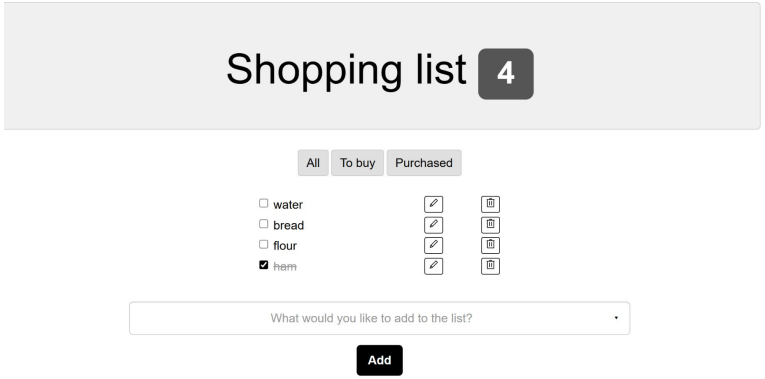
Methodology & Data

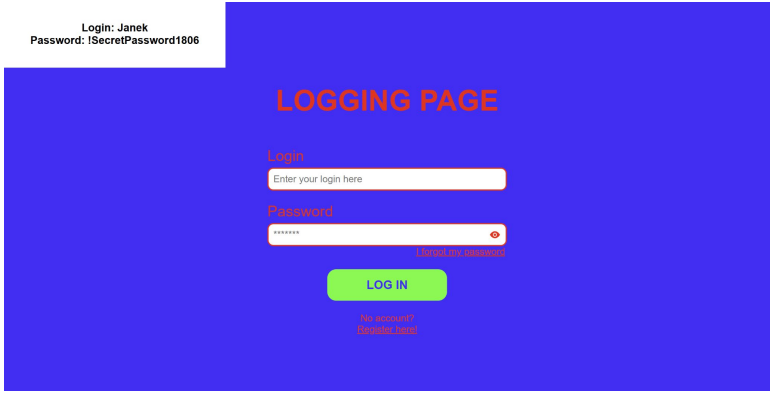
- The study was conducted between 16 July 2025 and 3 February 2026.
- The design enabled analysis of both measurable usability outcomes and subjective user experiences related to interface interaction and accessibility.

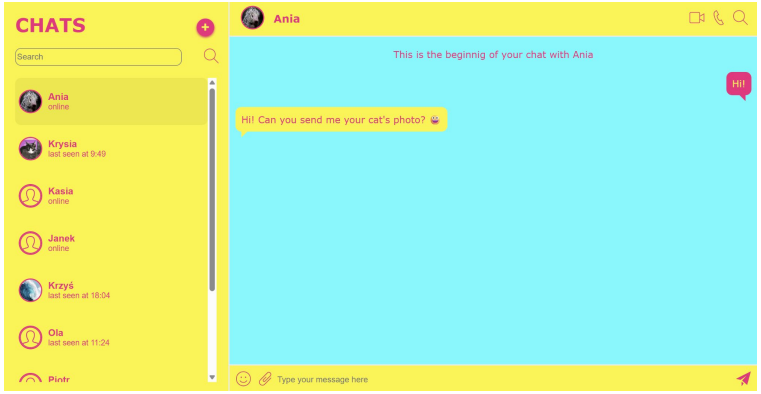
Procedure

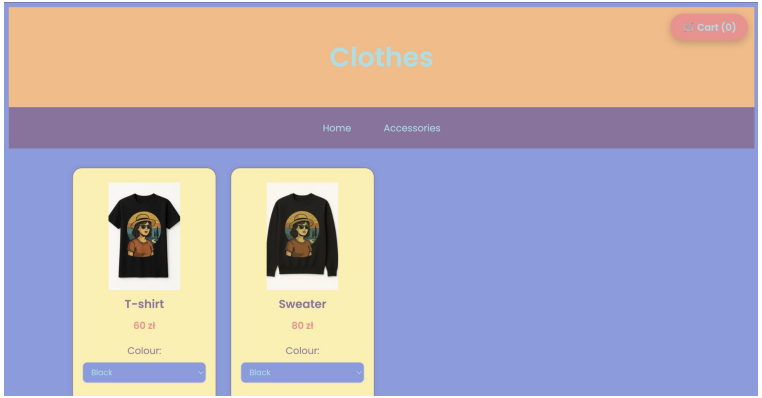
Introductory questionnaire	Task-based usability test	Closing questionnaire
• demographic items • questions about technology use • self-reported physical health status	• tasks on four interface prototypes • post-task evaluation of perceived difficulty, need for assistance and task completion time • post-module questionnaire on font size, colour contrast, button size, difficulties, and emotions	• subjective assessment of workload • elements participants perceived as easiest and most difficult

Task-based usability test









Task-based usability test

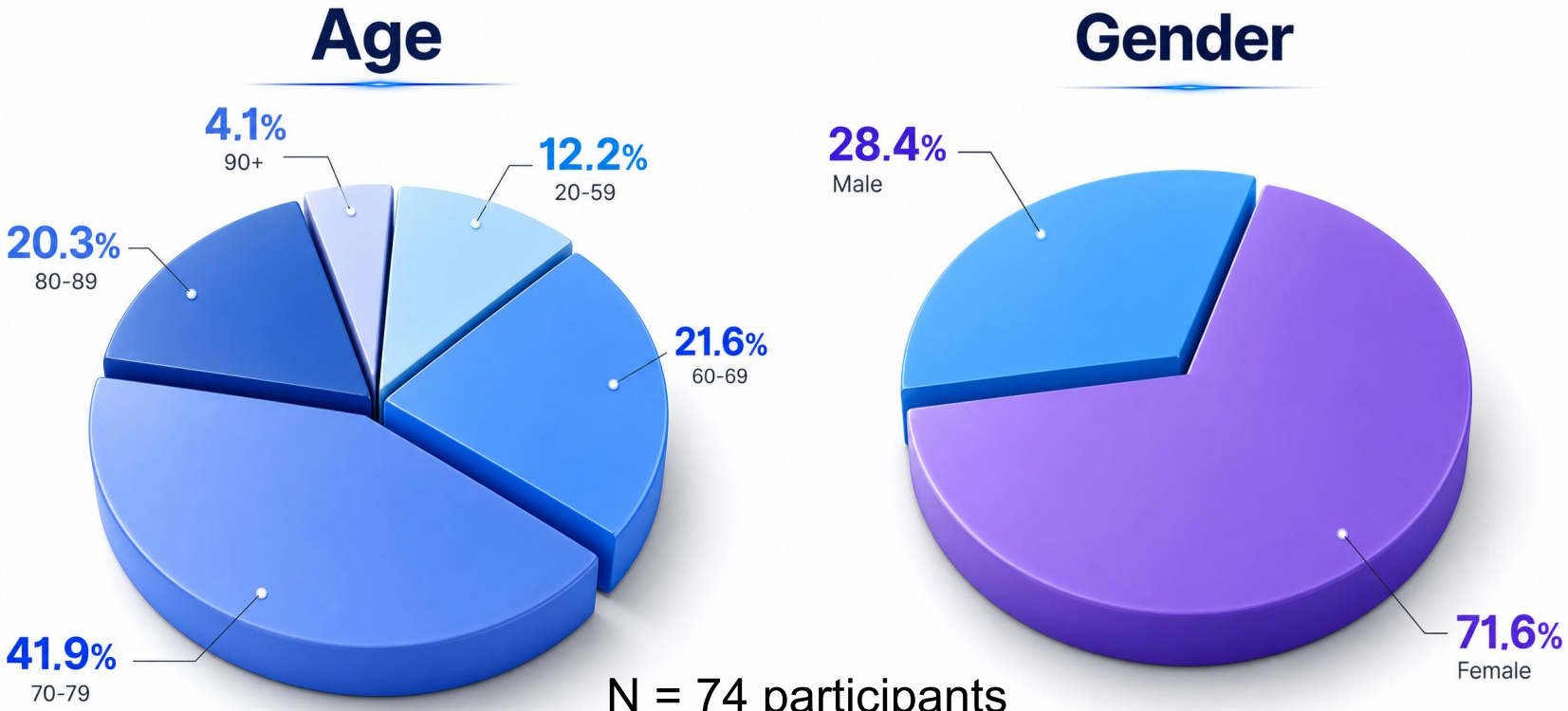
1. **Shopping list**
   a. add item
   b. delete item
   c. mark an item and filter products
   d. edit item name

2. **Messenger**
   a. send a message
   b. add John to the group
   c. send a picture

3. **Login/Registration**
   a. log in
   b. recover password
   c. register

4. **Shop**
   a. find item
   b. add an item to the basket
   c. complete the purchase and payment

Participants



N = 74 participants

Results: difficulty, independence, task completion

Aggregated results per module (difficulty*, independence, task completion time)

Module	M**	Me**	SD**	Independent completion (%)	Time Me (min)	Time IQR*** (min)
Messenger	2.73	3	1.12	29.7	5.0	3.0
List	2.18	2	1.09	48.6	3.0	4.0
Login/Registration	2.14	2	0.98	50.9	6.0	7.0
Shop	1.82	2	0.99	64.0	3.5	4.8

* difficulty was measured on a scale 1 (very easy) to 5 (very difficult)
** M - mean, Me - median, SD - standard deviation of difficulty perception
*** IQR - interquartile range

Results: key findings

Messenger was the most difficult module

29.7%

lowest independence index, highest perceived difficulty (M = 2.73)

Adding a group member was the most difficult task (M = 3.12; 16.2% independent completions)

The Shop module performed best

64.0%

highest independence index, lowest perceived difficulty (M = 1.82)

product search was the easiest task (78.4% independent completions)

Results: key findings

- **Navigation and discoverability were the main barriers:** overall difficulty was moderate (M = 2.22), but only 48.3% of tasks were completed independently.
- **Multi-step actions increased perceived difficulty**, especially when tasks required several consecutive decisions.
- **Accessibility and ergonomics need improvement** - users reported issues with contrast, readability, and clickability, highlighting the need for larger targets, clearer labels, and personalisation options for older adults

Conclusions: key design recommendations

Visible actions

clear labels and easy-to-find controls

Step-by-step interaction

step-by-step guidance

clear feedback

Improved readability

larger clickable targets and higher contrast

Future work

Enhanced usability testing

More detailed process measures, such as user errors, backtracking, misclicks, and step-level completion time

Assessment of cognitive abilities

Including standardised cognitive screening tools to provide a clearer understanding of how cognitive abilities influence interaction with user interfaces

Deeper qualitative analysis

More comprehensive qualitative analysis of participants' open-ended feedback

Real-world testing

Testing in more naturalistic settings where distractions, visual fatigue, and time pressure may affect performance

POZNAN UNIVERSITY OF TECHNOLOGY

FACULTY OF COMPUTING
AND TELECOMMUNICATIONS

Thank you for your attention

For any inquiries or questions, please contact:

julia.manikowskaa@gmail.com

piotr.lukasiak@put.poznan.pl