



DESIGNING *for*

OLDER ADULTS

# TABLE of CONTENTS

---

- 03 ABOUT THIS GUIDE / *who is this for?*
- 04 UNDERSTANDING OLDER USERS / *context matters*
- 06 RECOMMENDATIONS / *how to do the things*
- 16 IMPACT / *why it's important*
- 17 PRACTICE / *helpful activities*
- 18 FURTHER READING / *extra credit*
- 19 REFERENCES / *where it all came from*

© 2019 Serena Epstein / [serenae.com](http://serenae.com)

Icons made by [Freepik](https://www.freepik.com) from [flaticon.com](https://www.flaticon.com)

*This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). Selling is prohibited. Feel free to share or adapt!*

# ABOUT *this* GUIDE

---

**Our users are growing older.** Around the world, birth rates are declining while life expectancies increase. In 2016, 35% of Americans were over the age of 50, and that number is on the rise. Including them in design considerations improves usability for all, ensures acquisition and retention of a large, profitable population, and helps avoid costly tech debt. **In short, designing for older adults is essential for long-term success in our changing human landscape.**

This guide aims to **help UX professionals design for older populations**. It will establish a deeper understanding of these users, outline best practices, and emphasize the benefits of age-inclusive design. Recommendations come directly from peer-reviewed research in this field, spanning 30 years of academic insight.

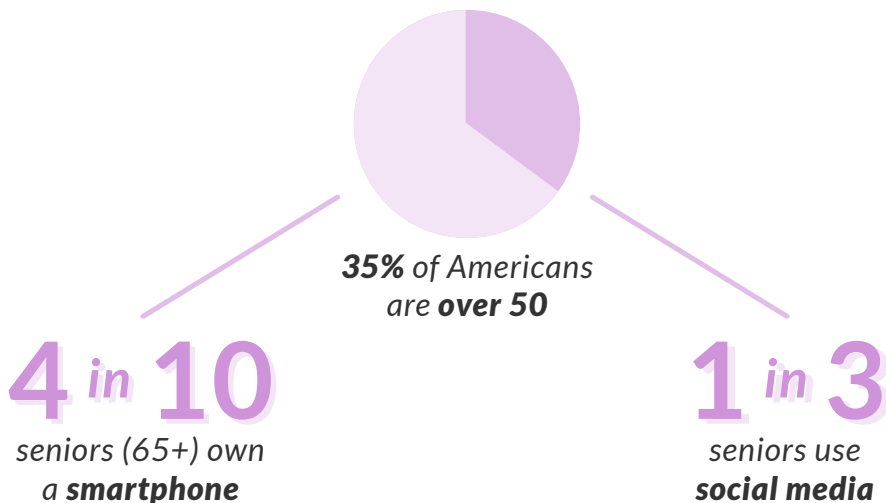
## ***key insights:***

1. Older users are a **diverse** group, with unique experiences and needs
2. Use **16pt** text, **high-contrast** colors, icon **labels**, and **simple gestures**
3. Opt for **large tap/click targets** with spacing between targets
4. **Prioritize** important content, use **simple language**, and **group** similar items
5. Provide opportunities for **self-guided learning**
6. Include older users in **usability testing** and **participatory design**

## UNDERSTANDING *older users*

# STATISTICS

---



Changing demographics show that **older populations are increasing**, and seniors are becoming **more tech literate**.

*Source: 2016 Census, Pew*

## UNDERSTANDING *older users*

# CHALLENGES



### SENSORY

- trouble perceiving **small text/icons**
- low vision users struggle with **contrast & color**
- certain sound frequencies can be **difficult to hear**



### MOTOR

- difficulty selecting **small targets**
- decrease in fine **motor skills**
- **slower response** and reaction times
- **touchscreen** is easier than mouse



### COGNITIVE

- **complex interfaces** are overwhelming
- **slower to learn** new skills
- may have **trouble remembering** processes or locations
- **low confidence**; additional needs for support & learning

Both the academic literature and national surveys agree: older adults have **lower confidence** with technology and often **seek additional help**. *Source: Czaja & Lee<sup>1</sup>, Pew<sup>2</sup>*

This is a **diverse group** with a range of strengths, experiences, and needs. Be mindful of these challenges but **don't let it define your perception** of older adults.

# RECOMMENDATIONS *for*

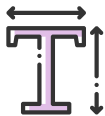
# TYPOGRAPHY

---



## FONT FAMILY

Choose a **sans serif** font for body text. Avoid decorative fonts and use italics sparingly. *Recommended: Verdana, Tahoma, Arial, Lucida.*



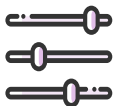
## FONT SIZE

Fonts should be **at least 16pt**. Be sure that this size is consistent across desktop, tablet, and smartphone.



## ALIGNMENT & SPACING

To maximize readability, **avoid centered or justified alignment** for paragraphs of text. Keep line spacing at 1.0 or higher.



## CUSTOMIZATION

Where possible, **let users customize text size** within your interface. Honor native device settings, e.g. accessibility settings for larger text.

# SPOTLIGHT *on research:* FONT SIZE

---



Make It Big! The Effect of Font Size and Line Spacing on Online Readability<sup>3</sup>

*Rello, et al. / CHI / 2016*



## APPROACH

This study expands on previous research by examining a larger range of font sizes (10-26pt) with participants aged 14-54. The tests used eye tracking, comprehension questions, and perception ratings.

## FINDINGS

Readability and comprehension improved continuously up to a font size of **18pt**. Fonts smaller than 14pt resulted in significantly lower scores, as did line spacing under 1.0.

*Further reading<sup>4</sup> on font size, type, and legibility:*

**[bit.ly/fonttype](https://bit.ly/fonttype)** (free)

## APPLY IT

- Font sizes 14-18pt are ideal for most users (older and younger)
- Avoid narrow line spacing (<1.0)

# RECOMMENDATIONS *for*

# COLOR & ICONS

---



## CONTRAST

Always choose **high-contrast** colors and avoid displaying text over top of images. *Contrast checker:* [webaim.org/resources/contrastchecker](http://webaim.org/resources/contrastchecker)



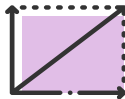
## RECOGNITION

Icons can be helpful visual aids for older adults. Use icons that are **familiar** to users, **easy to understand**, and **not too abstract**.



## LABELS

**Provide labels** with icons whenever possible. Labels should be a clear and concise description of the icon's function.



## TARGET SIZE

Ensure that all tap/click targets are **large**, with sufficient **spacing** between targets. *Recommended target size:* 16mm.

# SPOTLIGHT *on research:* TARGETS



Touch Screen User Interfaces for Older Adults: Button Size and Spacing<sup>5</sup>

*Jin, et al. / HCII / 2007*



## APPROACH

This study, focusing on older users, fills a research gap in touchscreen interface recommendations. The authors tested target sizes, spacing, and manual dexterity.

## FINDINGS

Buttons in rows should be **larger** (16mm) with **more spacing** (6mm). Older users preferred button sizes between 16-19mm. Accuracy plateaued at 19mm. Increased sizes and spacing are needed for low-dexterity users.

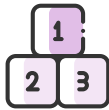
*When collecting performance metrics on older users, consider testing manual dexterity. This study used the **Pegboard Test**.*

## APPLY IT

- Smaller buttons (11mm+) are fine when the button is alone
- Use larger buttons (16mm+) when multiple buttons are side-by-side
- Aim for 6mm spacing between buttons

# RECOMMENDATIONS *for* CONTENT

---



## PRIORITIZE

**Highlight the most important content** and **repeat it** in multiple locations.



## GROUPING

**Group related items together** to reduce cognitive load. However, be sure that items with opposite functions are clearly differentiated.



## SIMPLIFY

**Use language that is simple** and easy to understand, especially in areas like headings and menu items.



## GESTURES

Keep gestures as **basic** as possible (*e.g. tap and swipe*). Users should be able to complete gestures with one finger.

# SPOTLIGHT *on research:*

# GESTURES

---



Age-Related Differences in Performance with Touchscreens Compared to Traditional Mouse Input<sup>6</sup>

*Findlater, et al. / CHI / 2013*



## APPROACH

This study compares touchscreen and desktop performance between older and younger adults, assessing five tasks: pointing, dragging, crossing, steering, and pinch-to-zoom.

*Older adults were **35% faster** on a touchscreen vs. desktop, reducing the performance gap between older and younger users.*

## FINDINGS

For older adults, **touchscreen was easier to use** than desktop. On touchscreen, dragging and steering were the slowest tasks. **Pointing was fastest** and rated as easiest by both older and younger participants.

## APPLY IT

- Consider a mobile-first approach for users of all ages
- Stick to simple gestures
- When complex gestures are used, add a secondary method (e.g. pinch-to-zoom *and* zoom button)

# RECOMMENDATIONS *for* SUPPORT

---



## ERRORS

Prioritize **error prevention** and **error recovery**. Most actions should be reversible. Include a clear warning and confirmation if non-reversible.



## ASSISTANCE

Provide multiple modes for users to **receive help** with the interface, such as tutorials, tooltips, reminders, FAQs, and support chat.



## SEARCH

Ensure that all search features are **easy to access and use**. Offer **predictive** search results, when appropriate, to save users time.



## NAVIGATION

**Help users stay oriented** by including page headings, menus, home links, and breadcrumbs.

# SPOTLIGHT *on research:* LEARNING



How Older Adults Learn to Use Mobile Devices: Survey and Field Investigations<sup>7</sup>

*Leung, et al. / TACCESS / 2012*



## APPROACH

Building on previous research that broadly studied how older adults learn to use technology, this study focuses on specific methods, comparing older users (50+) with younger ones (<49).

## FINDINGS

Older adults are **risk-averse**. They are less likely to use trial-and-error for learning, and want to know the **exact steps needed**. When help is provided, they prefer it to be **interactive** with ample opportunities to **practice**.

*"I'm print oriented – I like to read to understand."*

*"If I have directions I can usually figure it out."*

## APPLY IT

- Provide interactive tutorials and documentation that aid self-guided learning
- Make it clear that actions are reversible
- Use non-technical language

# RECOMMENDATIONS *for* TESTING

---



## RECRUITMENT

Partner with **community organizations** to find participants. Older adults are a diverse group, so recruit for attributes most relevant to your study.



## ACCESS

When choosing a **testing location**, keep in mind that older adults may be reliant on public transport, assistive technology, or family members.



## TRANSPARENCY

**Put the participant in control**, creating an environment where an open dialogue is encouraged and the purpose/outcomes of testing are clear.<sup>8</sup>



## COMMUNICATION

Reduce pressure, use **simple language**, give participants **time to think**, practice active listening, and relate questions to the participant's world.

SPOTLIGHT *on research:*

# PARTICIPATORY DESIGN



Engaging Older People using Participatory Design<sup>9</sup>

*Lindsay, et al. / CHI / 2012*



## APPROACH

This study examines how participatory design with older adults can be leveraged to improve products.

## FINDINGS

Older adults are **underrepresented** in design processes. There are four main challenges: maintaining **focus**, **understanding** issues, **envisioning** concepts, and **designing for non-tasks**. A process that incorporates video prompts, exploratory meetings, and low fidelity prototyping is ideal.

*Read the full paper for detailed guidelines & examples:*

**[bit.ly/engage-pd](https://bit.ly/engage-pd) (free)**

## APPLY IT

- Recruit from community groups, with relevant diversity in mind
- Visuals can help participants understand abstract concepts
- Use scenarios to kickstart exploratory design sessions

# POTENTIAL IMPACT

---

Older adults are **more engaged** with technology than ever before. They are **diverse**, with unique experiences, skills, and needs. When designing for this population, the rewards outweigh the challenges. Improved readability and comprehension, logical information architecture, cohesive content strategy, self-guided learning resources, and inclusive research practices are just some of the outcomes of design changes for older adults, and **these outcomes benefit all users**.

Attracting users over the age of 50 is **profitable**, too. Baby boomers control 70% of all disposable income in the US, and have a higher net worth than any other generation. (*Source: [US News, 2015](#)*) They're active, healthy, and heading into a long and exciting new chapter of their lives. **Capture this market** through inclusive design, and you'll boost profits and avoid costly tech debt down the line.

Finally, a reminder. **This is a population that everyone joins**, eventually. Design for accessibility, profitability, and your future self.



# ACTIVITIES *for* PRACTICE

---



## SHARE

1. How do older adults in your own family feel about adopting new technology? What products do they use?
2. Find an existing product or interface that you think is (or is not) well suited for older adults. Share & explain why.



## DISCUSS

3. What is the most surprising thing you've learned about designing for older adults?
4. What strategies might you use to advocate for inclusive design within your organization?



## IDEATE

5. Think of one of your favorite products, then sketch out some ways you might improve it for older adults.
6. What changes might your current product need to make it more inclusive for older adults?

SOME *further*

# READING

---



## GENERAL

**2018 World Population Data Sheet** - PRB, 2018

**Seniors as Web Users** - Nielsen Norman Group, 2013

**Developing Websites for Older People** - W3C, 2018

**How Design Fails Older Consumers** - Norman, 2019

**Designing for Older Adults, Third Edition** - Czaja et al., 2019 \*



## DESIGN

**Color Contrast Checker** - WebAIM

**Fonts** - WebAIM, 2013

**Touch Targets on Touchscreens** - Nielsen Norman Group, 2019



## RESEARCH

**New Heuristics for Understanding Older Adults as Web Users**

**Involving Older Adults in Design of the User Experience** - Chisnell, 2013

\* Not free

# ALL the REFERENCES

---

- 1. Information Technology and Older Adults**  
Czaja & Lee (*in Human-Computer Interaction Handbook, Jacko, 2012*)
- 2. Tech Adoption Climbs Among Older Adults**  
Anderson & Perrin (*Pew Research Center, 2017*)
- 3. Make It Big! The Effect of Font Size and Line Spacing on Online Readability**  
Rello et al. (*CHI, 2016*)
- 4. The Effects of Font Type and Size on the Legibility & Reading Time of Online Text by Older Adults**  
Bernard et al. (*CHI EA, 2001*)
- 5. Touch Screen User Interfaces for Older Adults: Button Size and Spacing**  
Jin et al. (*HCI, 2007*)
- 6. Age-Related Differences in Performance with Touchscreens Compared to Traditional Mouse Input**  
Findlater et al. (*CHI, 2013*)
- 7. How Older Adults Learn to Use Mobile Devices: Survey and Field Investigations**  
Leung et al. (*TACCESS, 2012*)
- 8. 3 x 7 Usability Testing Guidelines for Older Adults**  
Silva & Nunes (*MexIHC, 2010*)
- 9. Engaging Older People Using Participatory Design**  
Lindsay et al. (*CHI, 2012*)

