



# Older Computer User

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# About Older Adults

People with 65+ years old are referred to “older adults”

Older adults population in 2013 in the U.S, was: 44.7 million [1]

Prediction for 2040: 21.7% of the population [1]

Prediction for 2060: 98 million older persons [1]

# About Older Adults

The fastest growing group of population in developed countries

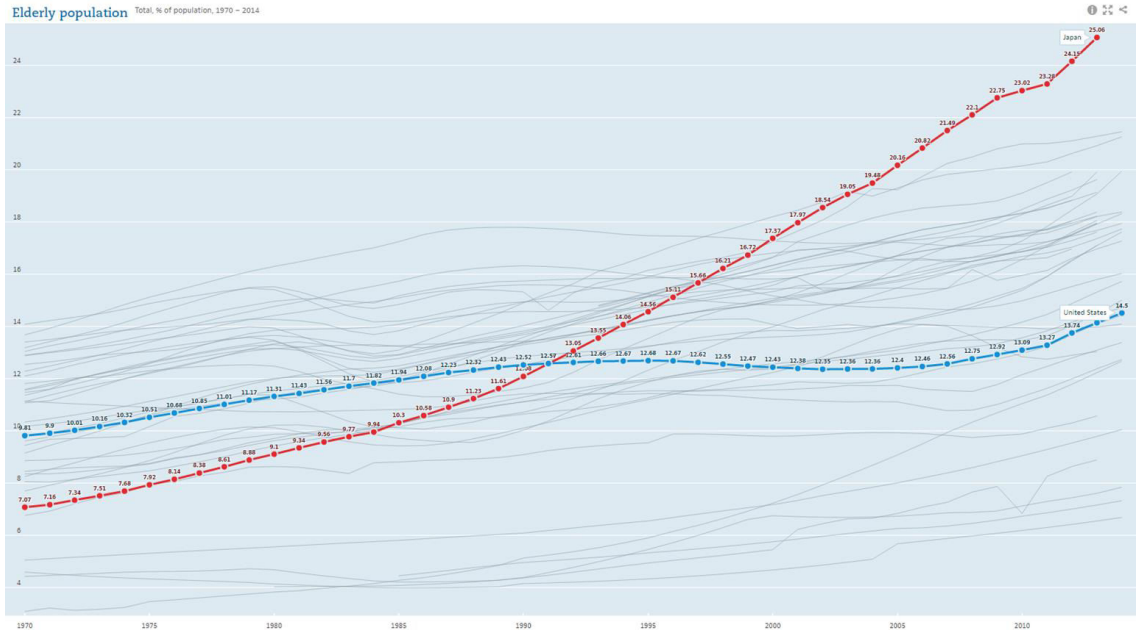


Figure 1. <https://data.oecd.org/pop/elderly-population.htm#indicator-chart>

# About Older Adults

Young (15-) population chart: Compare with older adults population chart

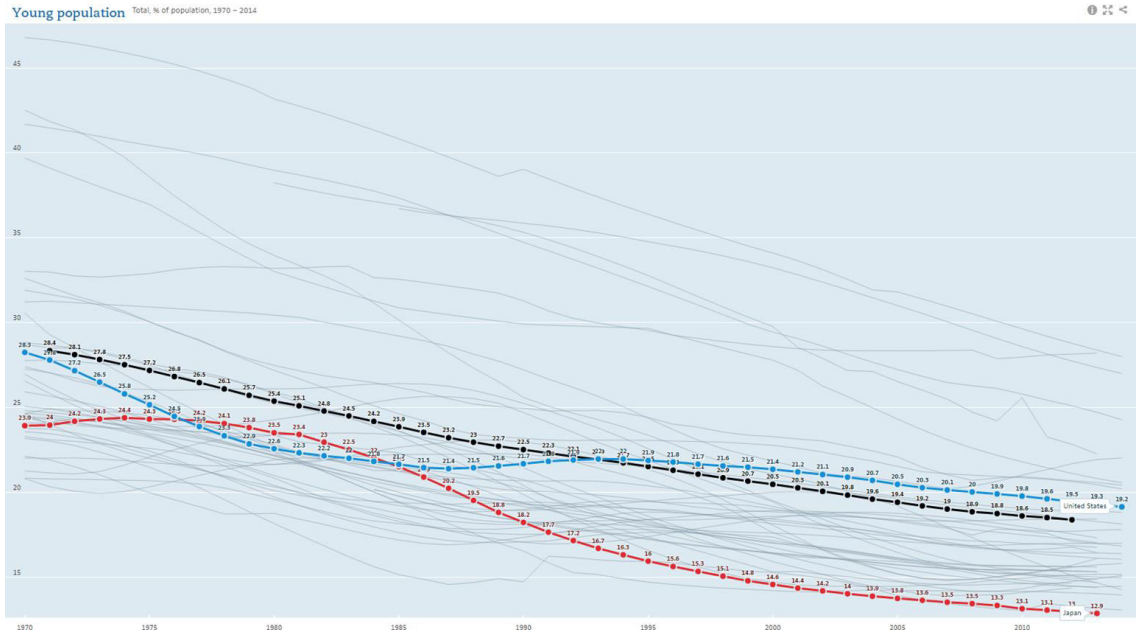
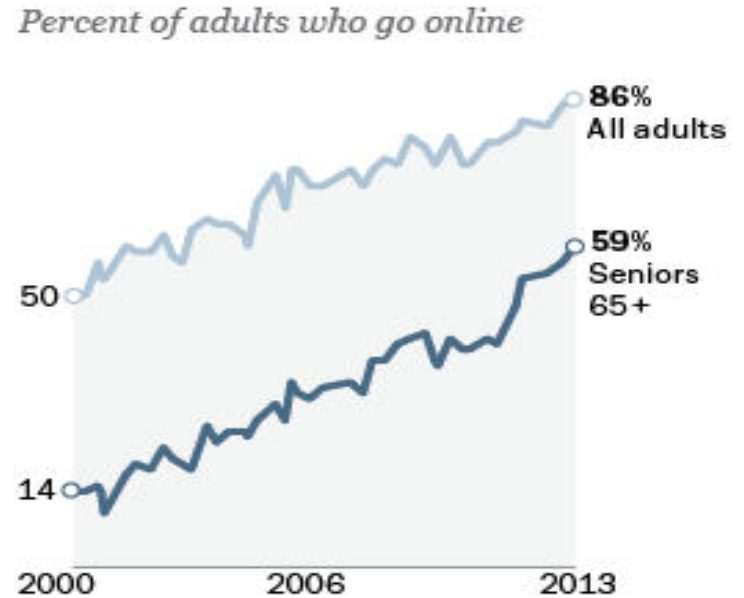


Figure 2. <https://data.oecd.org/pop/young-population.htm#indicator-chart>

# Older adults and technology

Comparing Internet usage of older adults with all adults:



# What Affects Use of Technology?

## 1. Income

### Household Income

<\$30,000	39
\$30,000-\$49,999	63
\$50,000-\$74,999	86
\$75,000+	90

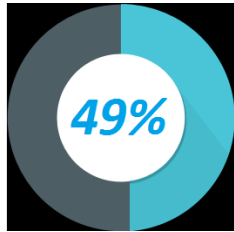
## 2. Education

Education	
High school grad or less	40
Some college	69
College graduate	87

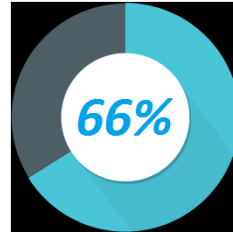
# What Affects Use of Technology?

## 3. Physical conditions and cognitive issues

Percentage of seniors going online based on their health condition [2]:



(With some health issues)



(Without health problems)

<http://www.csl.mtu.edu/classes/cs4760/www/projects/s16/grad3/www/Simulator.html>

# What Affects Use of Technology?

For example, seniors are more interested in tablet/e-book reader than smartphone

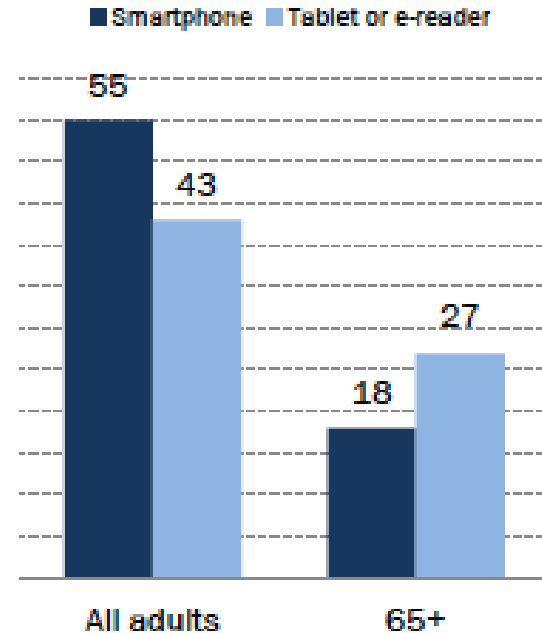


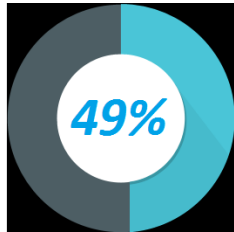
Figure 6. <http://www.pewinternet.org/2014/04/03/older-adults-and-technology-use/>



# What Affects Use of Technology?

## 4. Attitudes toward technology

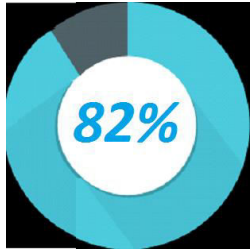
Percentage of seniors who currently do not use Internet and indicated this as a disadvantage in a sense that they are missing information [2]:



# What Affects Use of Technology?

## 5. Learning difficulties

Percentage of seniors who need assistance in learning technology [2]:



# How to Make it?

Physical conditions and cognitive issues

Attitudes toward technology

Learning process

# Sympathetic Design Framework [3]

## 1. Product functionality

> simple



> basic



Figure 7. <http://www.homecaremag.com/top-10-technology-devices-seniors>

# Sympathetic Design Framework [3]

## 2. Product interface

> Physical items



# Sympathetic Design Framework [3]

## 3. Design research methods

> Involve older adults

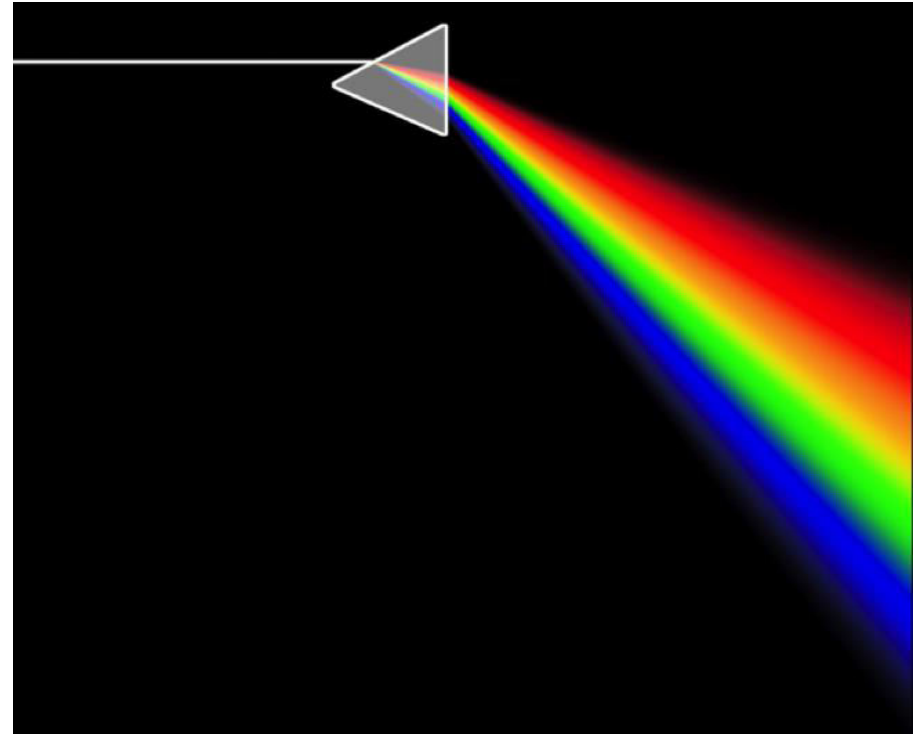


Figure 8. <http://mappingcolor.com/>

# Sympathetic Design Framework [3]

## 4. Universal design:

- > Equitable Use
- > Flexibility in Use
- > Simple and Intuitive Use
- > Perceptible Information
- > Tolerance for Error

# Sympathetic Design Framework [3]

## 5. Product experience

- > Enjoyable
- > Creative

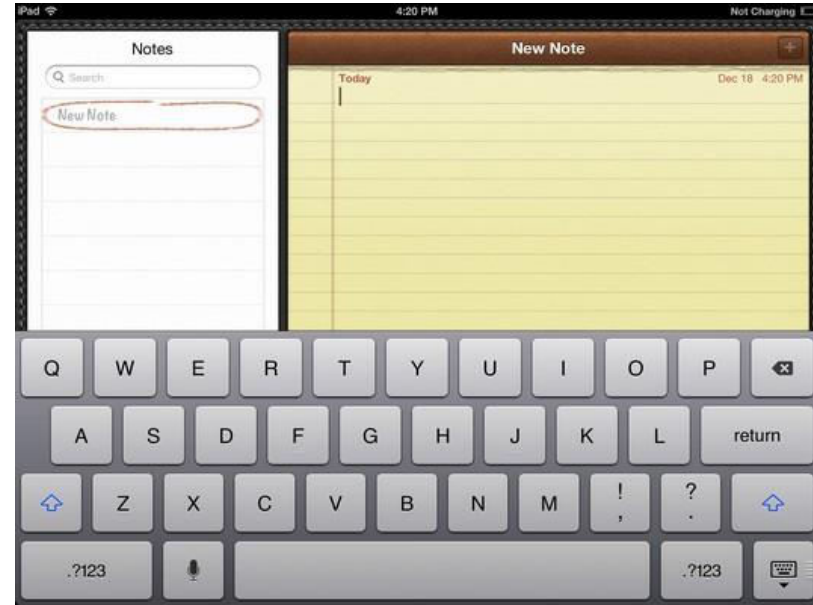


Figure 9.[left] <http://www.best-alzheimers-products.com/gifts-for-alzheimers.html>. [right] <http://www.laptopmag.com/articles/apple-ipad-vs-microsoft-surface-which-is-better-for-business>



# Sympathetic Design Framework [3]

## 6. Technology use

> Current

> Off-the-shelf



Figure 10. <http://encyclopedia2.thefreedictionary.com/PDA>

# Seniors Learning Process [7]

1. Older adults prefer to keep their own pace in learning
2. Older adults experience more frustration and anxiety than others in learning new/complicated technologies
3. Provide a planned learning process for them

# Seniors Learning Process [7]

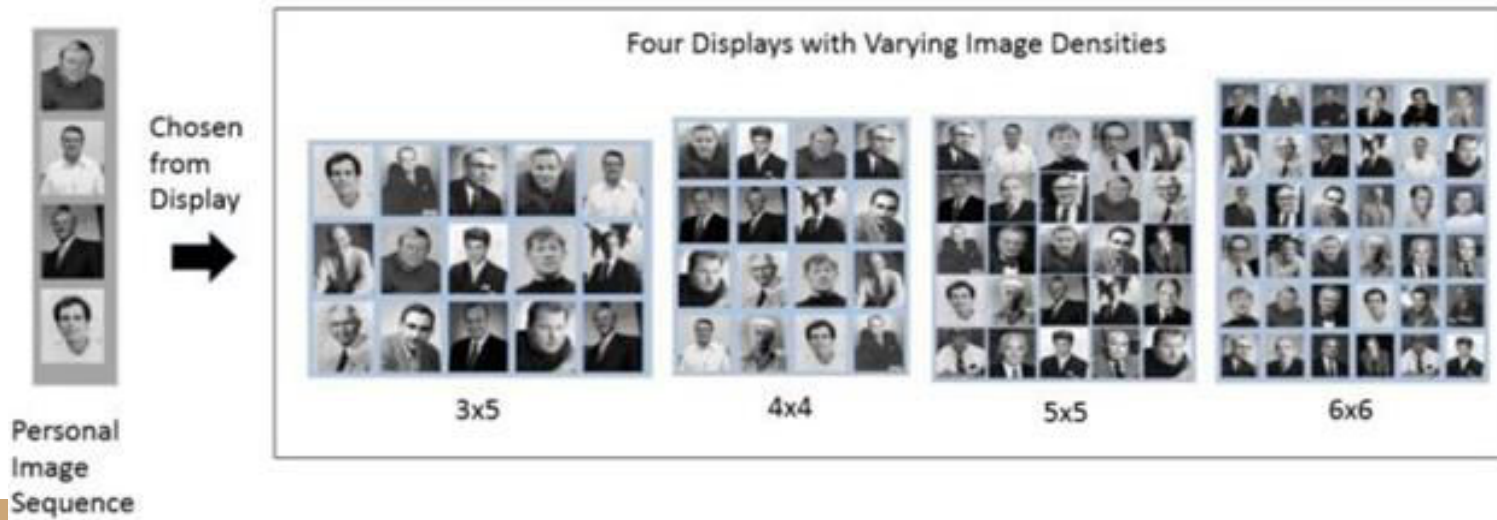
4. Minimize the need to memorize
5. Provide clues and assistance
6. Do not make them feel overwhelmed with too much information
7. Do not ask them to make complicated conclusions or put them in a situation to feel they are missing some information.

# Tools and Technologies for Older adults

Graphical Passwords for Older Computer Users [4]:

Select a set of images as your password

Choose your password images from among the proposed set



# Tools and Technologies for Older adults

Gesture Enhanced Keyboard for Older Adults [5]:

It uses larger keys

Each screen shows one half of the keyboard

Shake the device to see other half of the keyboard



# Tools and Technologies for Older adults

Altruist [3]:

Encourages seniors to go social and make friends

If one of your friends presents in a specific location this gadget informs you



# Tools and Technologies for Older adults

Forgetfulness [3]:

Reminds older adults to complete their tasks

Place the tag on the object and record a message about the tasks to be done

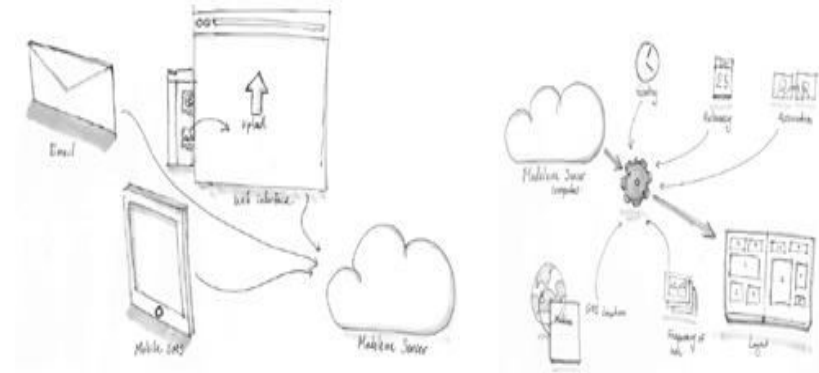


# Tools and Technologies for Older adults

Madeline [3]:

This gadget is an electronic photo album

Send and receive photos from the server





# References

1. [http://www.aoa.acl.gov/aging\\_statistics/index.aspx](http://www.aoa.acl.gov/aging_statistics/index.aspx)
2. <http://www.pewinternet.org/2014/04/03/older-adults-and-technology-use/>
3. Rebola, Claudia B., and Brian Jones. "Sympathetic devices: designing technologies for older adults." Proceedings of the 31st ACM international conference on Design of communication. ACM, 2013.
4. Carter, Nancy J. "Graphical Passwords for Older Computer Users." Proceedings of the 28th Annual ACM Symposium on User Interface Software & Technology. ACM, 2015.
5. Dunlop, Mark, et al. "Shake'n'Tap: a gesture enhanced keyboard for older adults." Proceedings of the 16th international conference on Human-computer interaction with mobile devices & services. ACM, 2014.
6. Nunes, Francisco, Maureen Kerwin, and Paula Alexandra Silva. "Design recommendations for tv user interfaces for older adults: findings from the eCAALYX project." Proceedings of the 14th international ACM SIGACCESS conference on Computers and accessibility. ACM, 2012.
7. Leung, Rock, et al. "How older adults learn to use mobile devices: Survey and field investigations." ACM Transactions on Accessible Computing (TACCESS) 4.3 (2012): 11.