

Smart Aging: concept and implementation Pitfall of age-friendly design based on Japanese Experience

June 22, 2018

Hiroyuki Murata

President, Murata Associates, Inc.

Professor, Smart Aging Research Center,

Tohoku University, Japan

Age-friendly
= friendly (or comfortable)
for a specific age group

In many cases,
Age-friendly is equal to
elder-friendly or senior-friendly

Example of Age-friendly Cities Sun City (Arizona, USA)



Example of Age-friendly Cities Sun City (Arizona, USA)



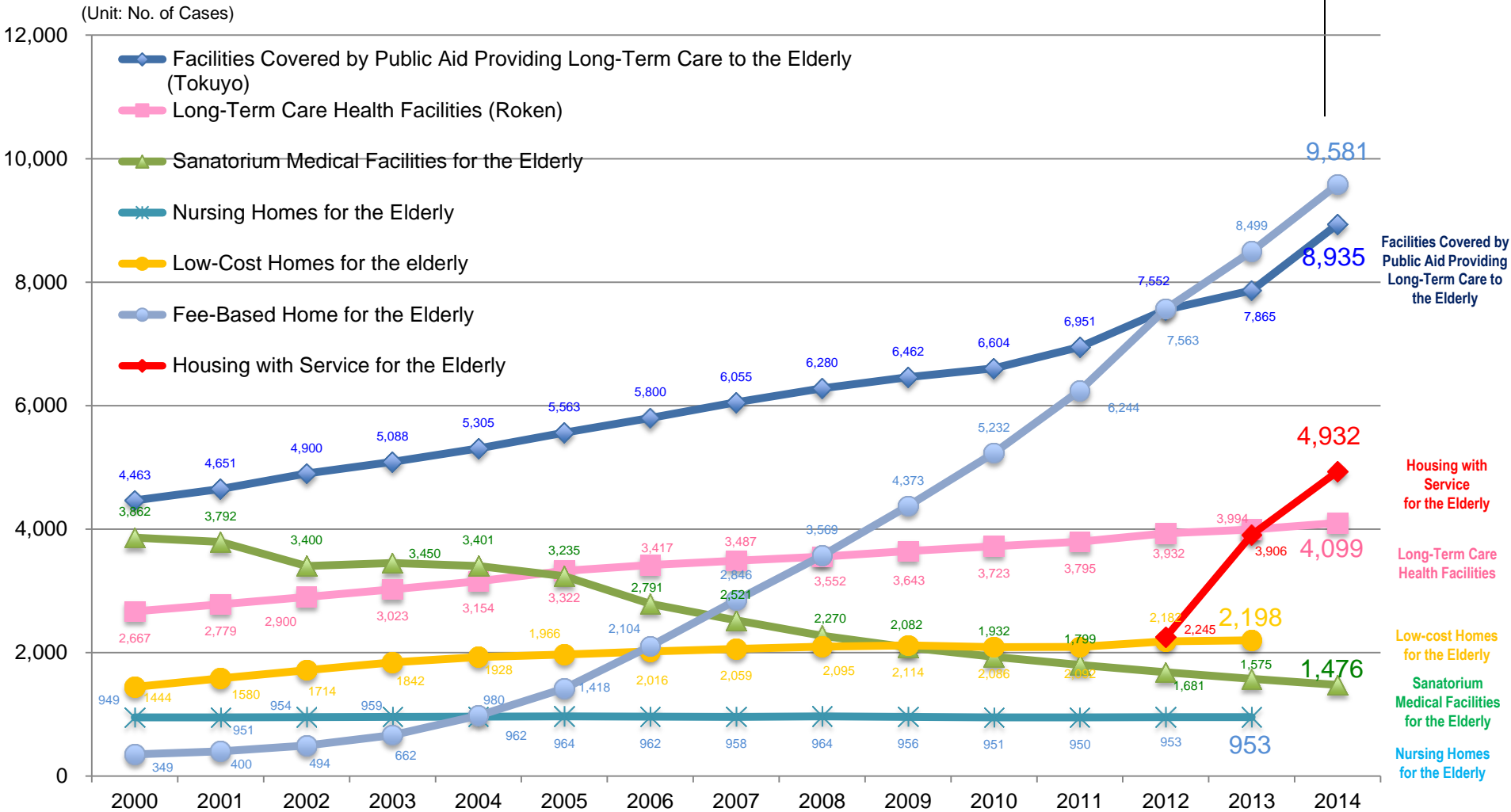
Most residents are over 75

Example of Age-friendly Communities

Special nursing home for the elderly (Japan)



Increased number of elderly facilities



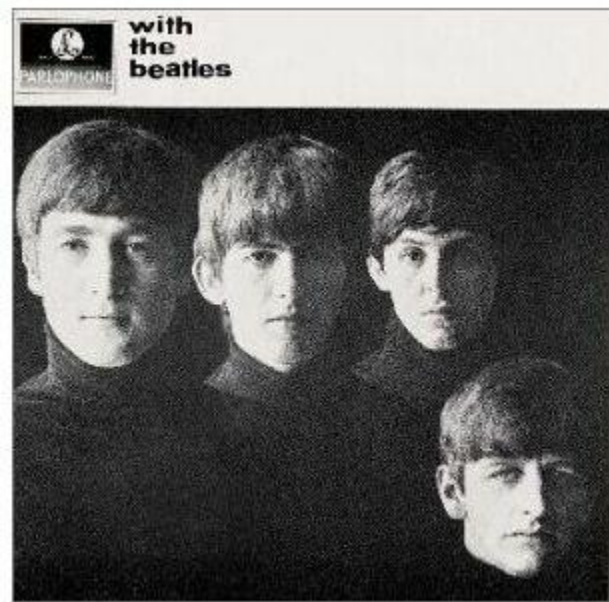
However, Age-friendly has a challenge

**Friendly for a specific age group
is not always friendly
for other specific age group**

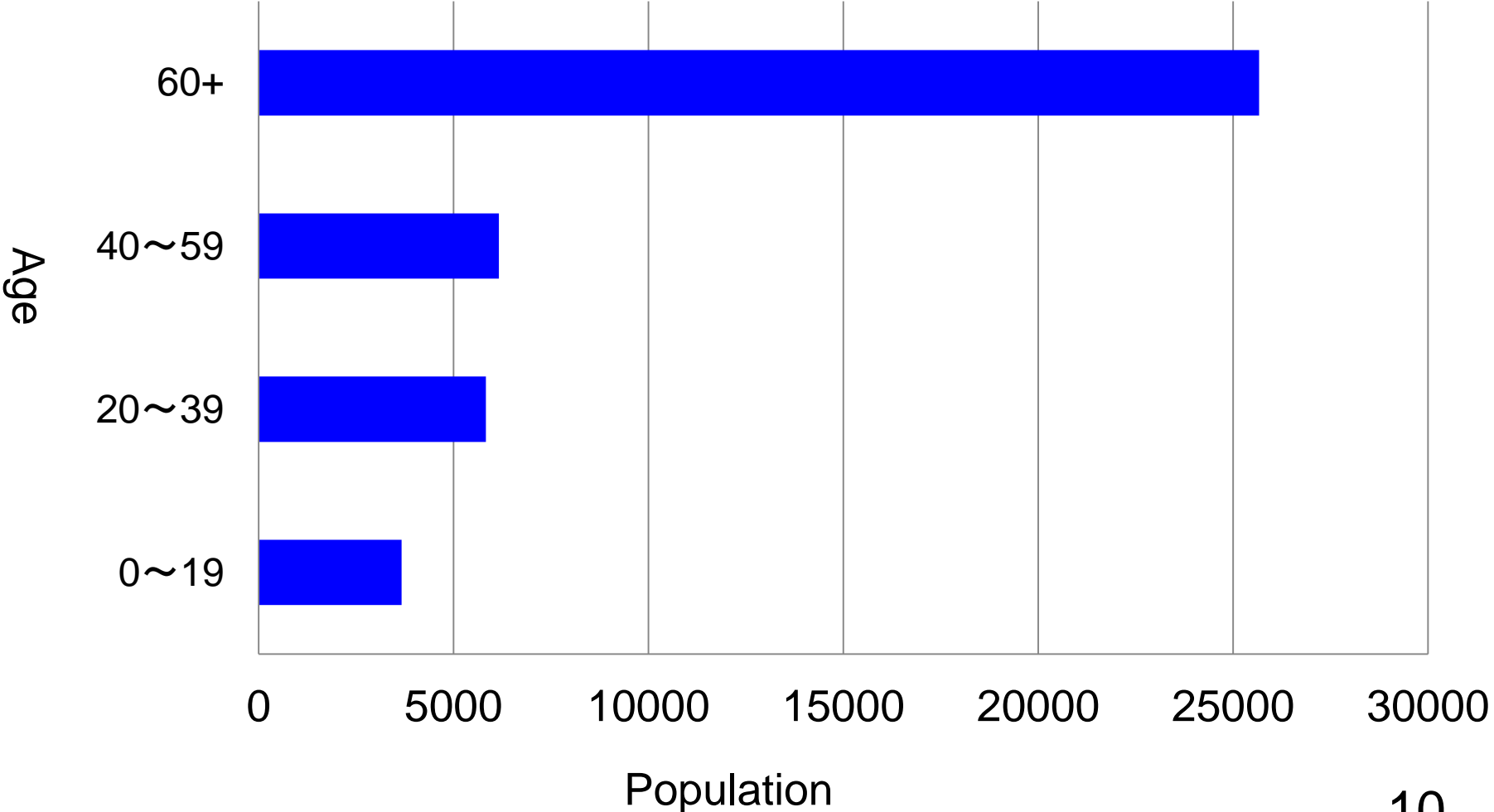
Example of Challenge of Age-friendly Communities Tama New Town (Tokyo, Japan)



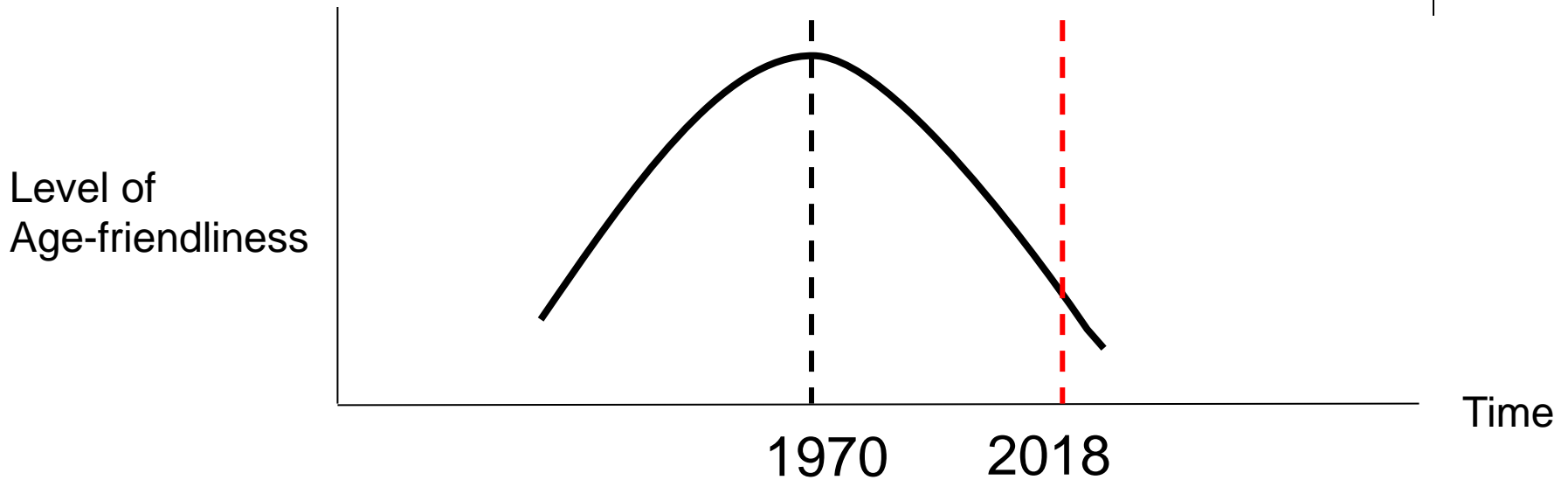
Who was the target of Tama New Town when it was developed in 1970's?



Population structure of Tama New Town **now**



Limitation of Age-friendly Cities

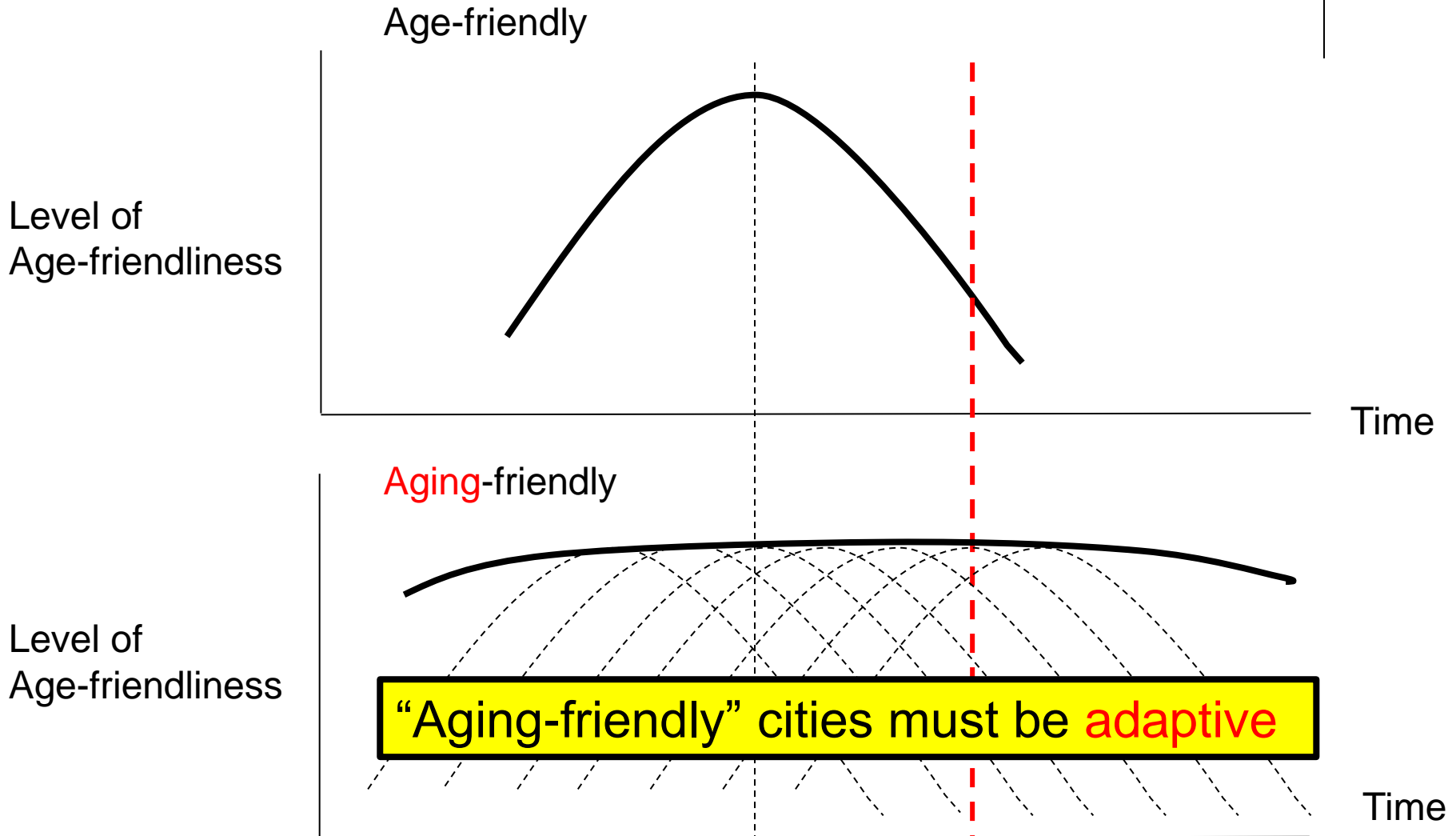


- **Most** optimum for a specific age group at **a specific time**
- **Not** optimum for a specific age group at **a different time**

Why?

1. Individuals and societies are **aging as the time goes by**
2. Aging of the Individuals and societies will **change their nature**
3. This change of nature will **change the demands** of individuals and societies

“Age-friendly” Cities vs. “Aging-friendly” Cities



Concept of Smart Aging

Traditional view of aging

- aging is loss
- aging is deterioration
- Grey Dawn, etc...

Anti-aging: wrong view of aging

- aging is disease
- aging is ugly
- Younger is better than older

View of Smart Aging

- aging is gain
- aging is development
- aging is human growth

Two meanings of Smart Aging

1. We can become smarter as we age.
2. We need smarter solutions to the challenges due to the aging of society.



Smart Aging Research Center(SARC), Tohoku University, Sendai, Japan

Copyright© Hiroyuki Murata All Rights Reserved.

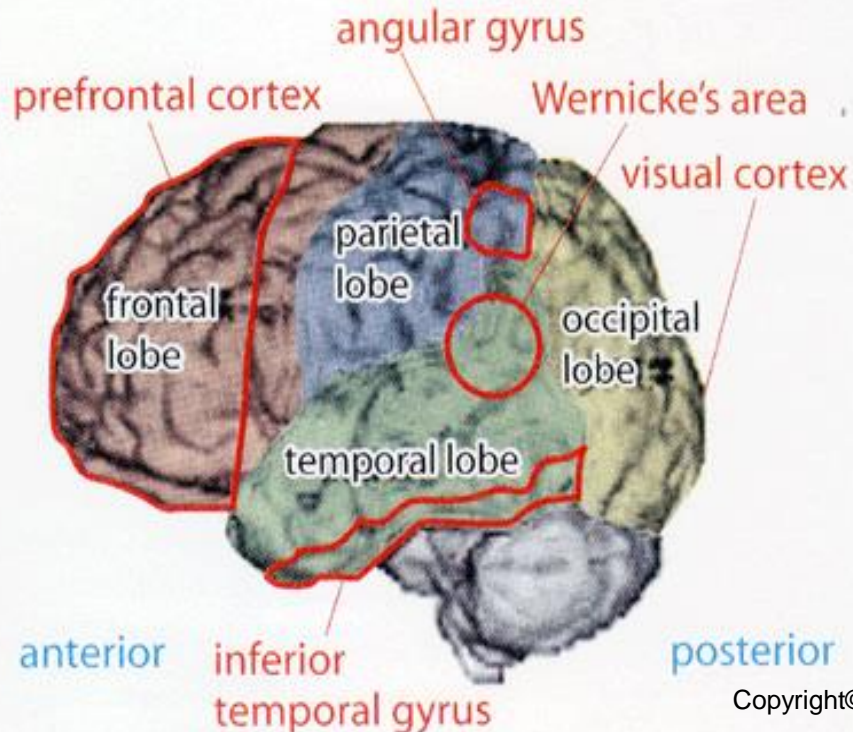
Four conditions to achieve Smart Aging



Selecting effective tasks to activate PFC

- Research on lobe performance by brain functional imaging studies

The brain as seen from the left side



Functional MRI at SARC

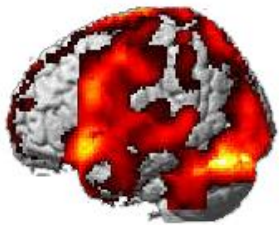


Select Effective Tasks for Activating PFC

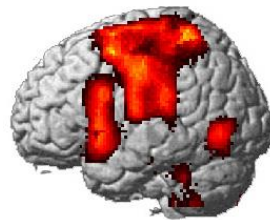
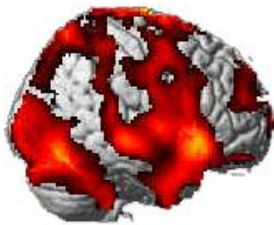
Research Result

The tasks must

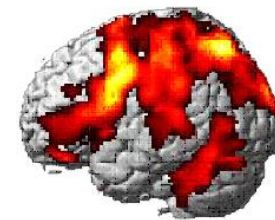
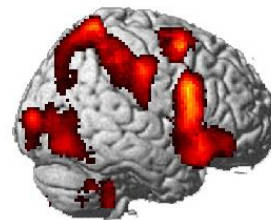
1. activate bilateral PFC
2. be simple and easy



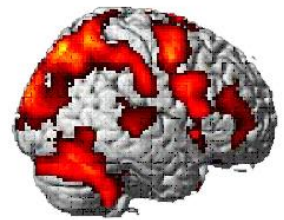
Reading aloud



Hand writing



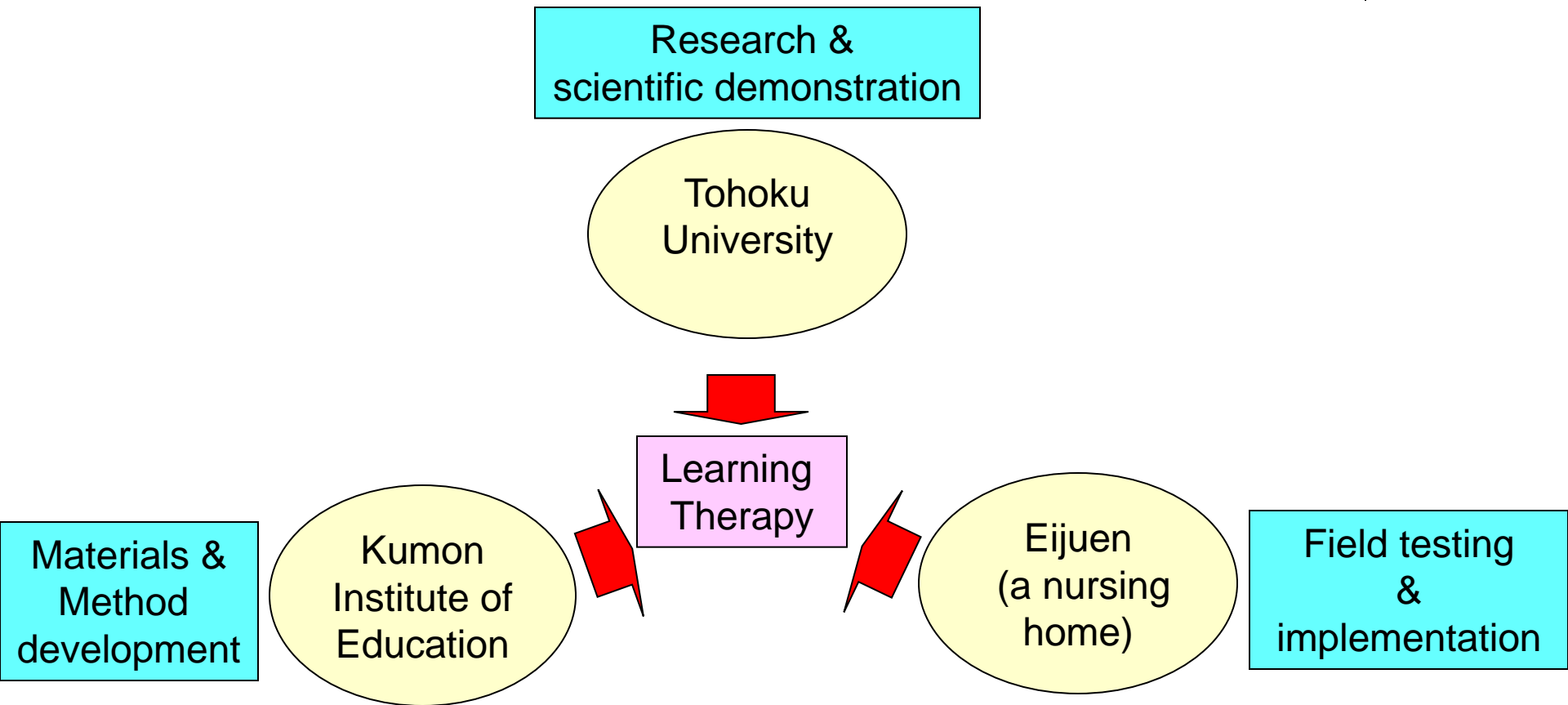
Simple arithmetic



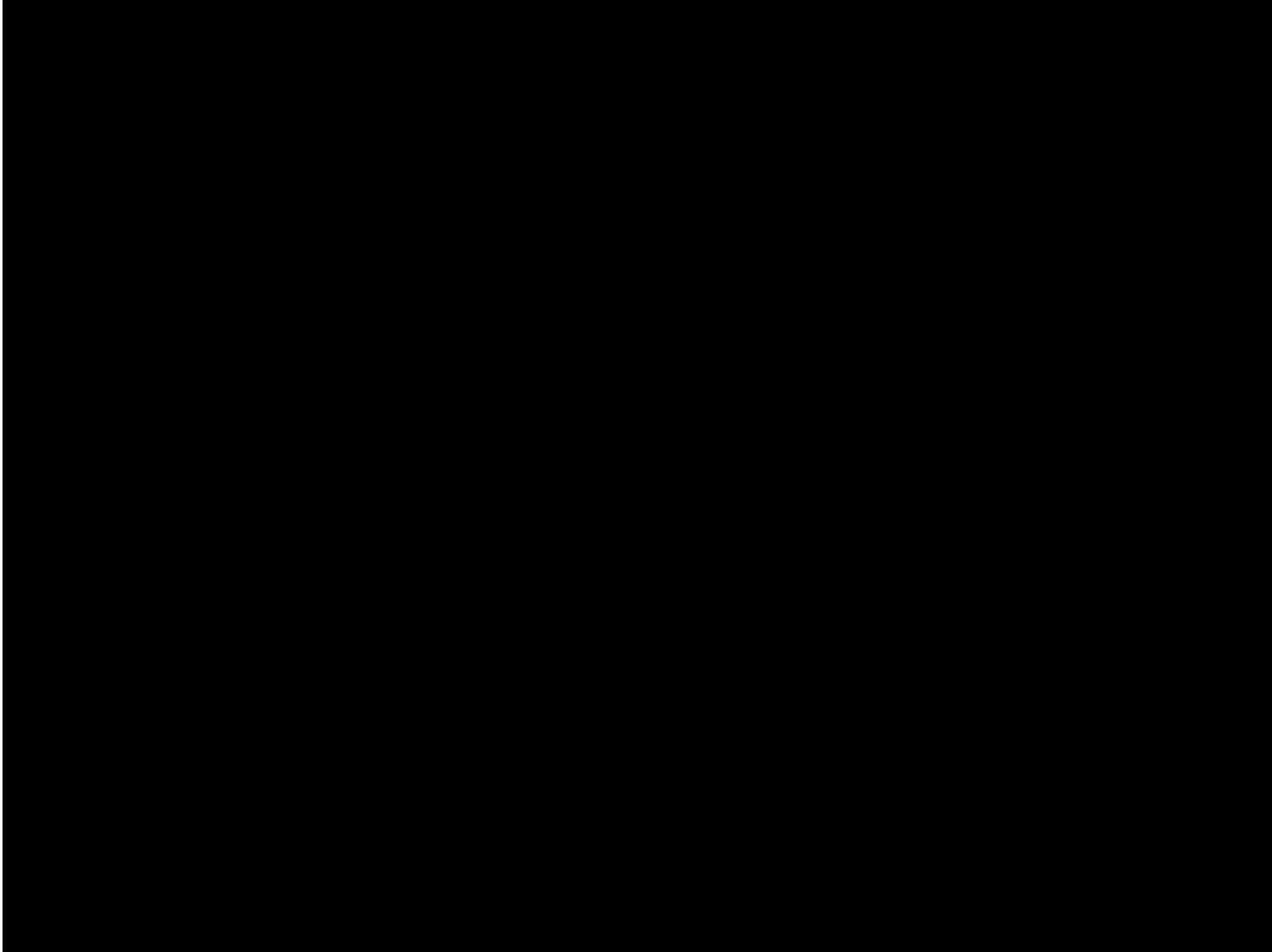
Materials design basis
for Brain Training

Learning Therapy: Non-pharmaceutical dementia improvement program

Collaboration among three key organizations has been started since 2001



Case: 78 years old women, Senile Dementia Alzheimer Type (1:54)





108 years old
Woman
Senile Dementia
Alzheimer Type

Case (86 years old Female: SDAT) Showed major improvements after three-month intervention



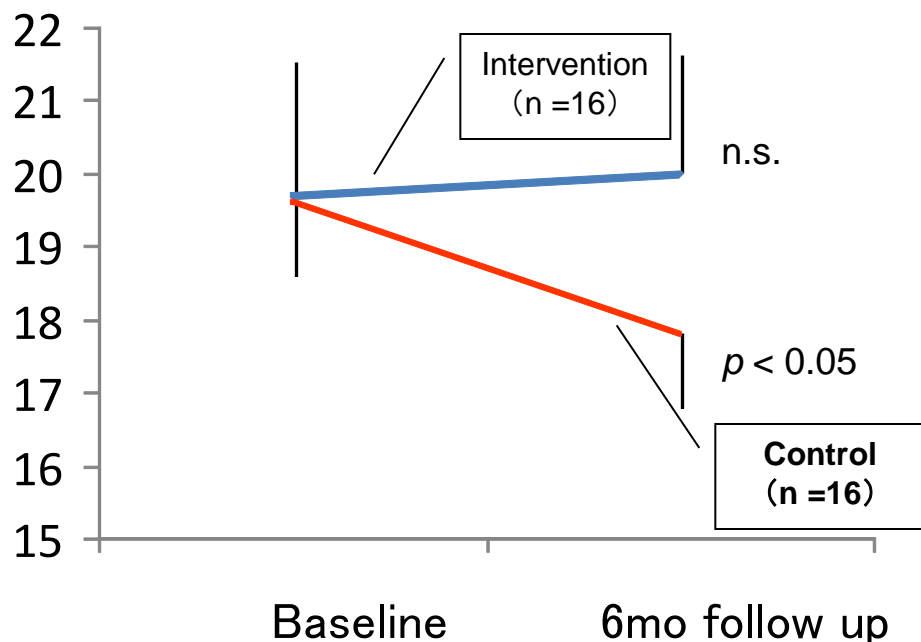
Bedridden more than 3 years

3 months after
Learning in a wheelchair

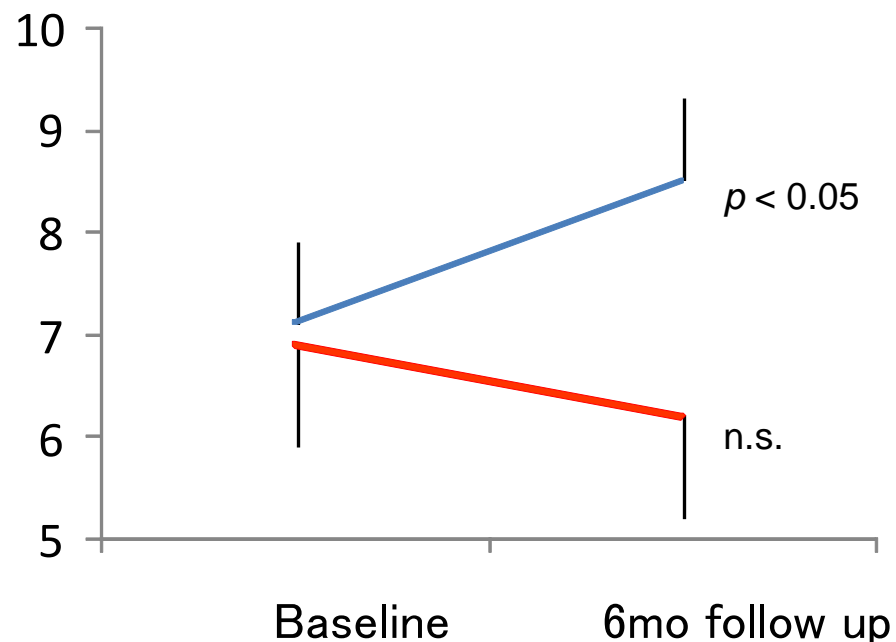
Changes in Neuropsychological Characteristics

Much improvement for the intervention group compared to the control group on standard mental assessments

MMSE



FAB



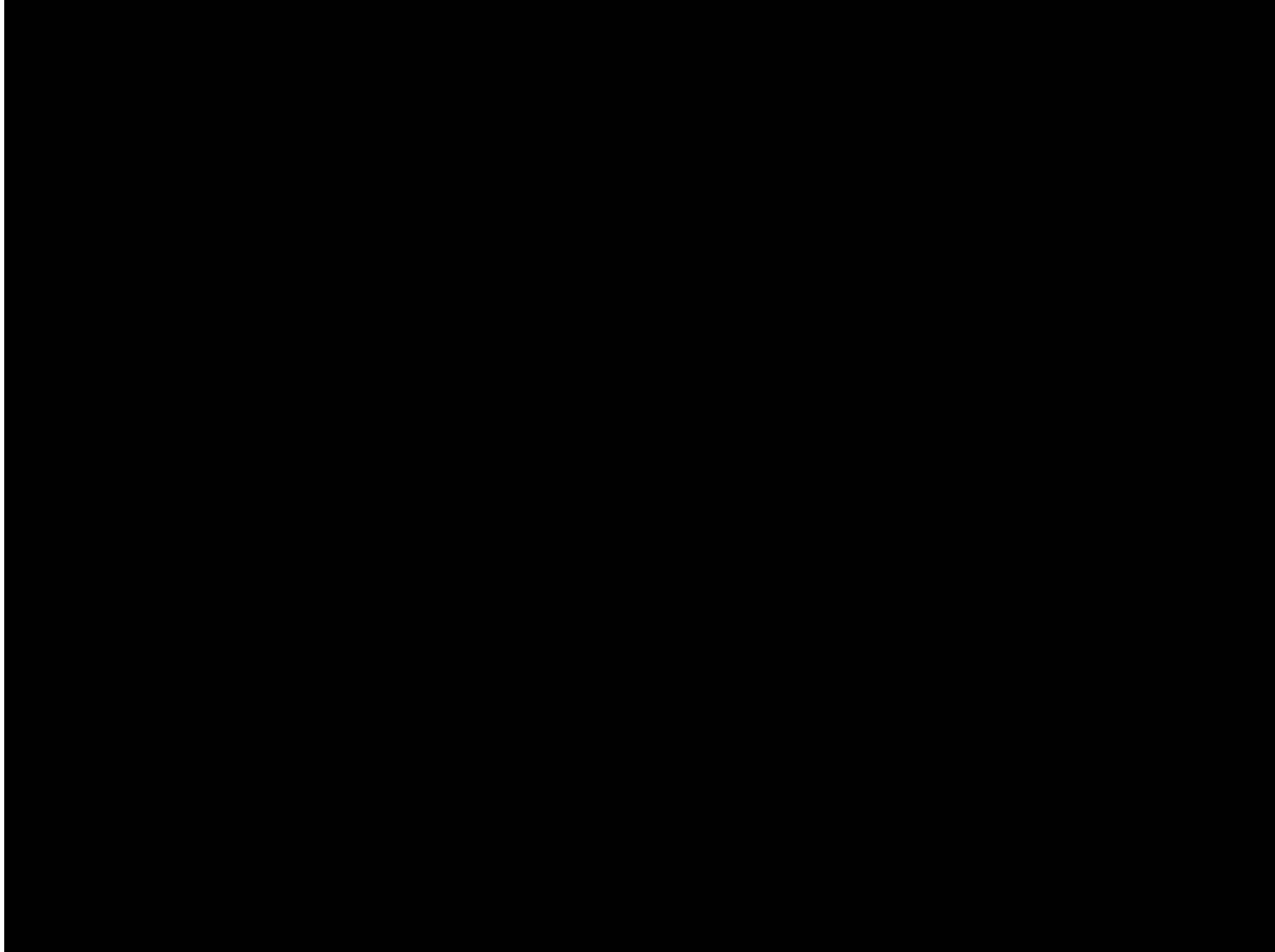
*MMSE: Mini-Mental State Examination
**FAB: Frontal Assessment Battery at Bedside

Error bars indicate SEM

“Vital Brain School” at Smart Aging Research Center



Voices from learners conducting Learning Therapy (0:50)



How is your life changed after joining the vital brain class?

Participants said their quality of lives were improved

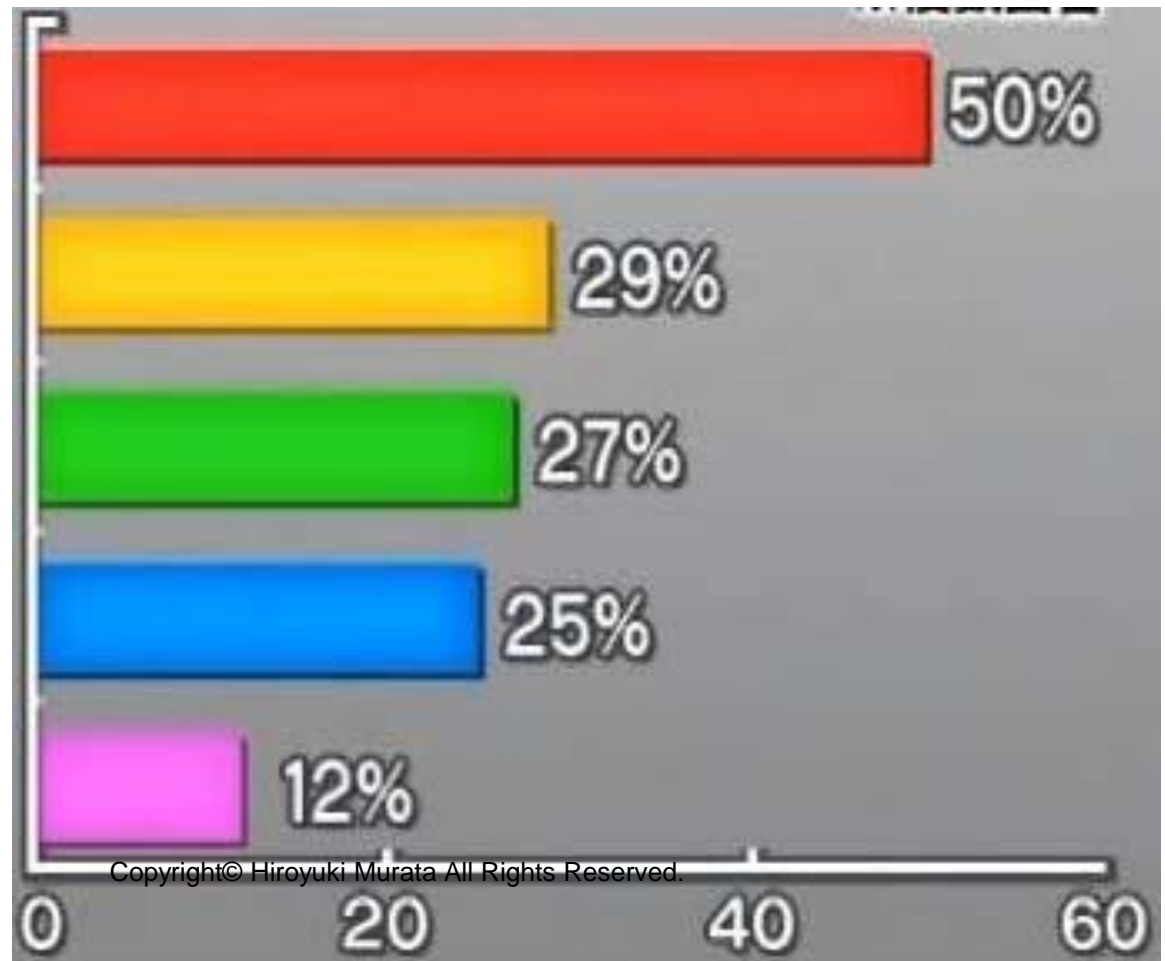
Became more vital

Became more motivated

Became more optimistic

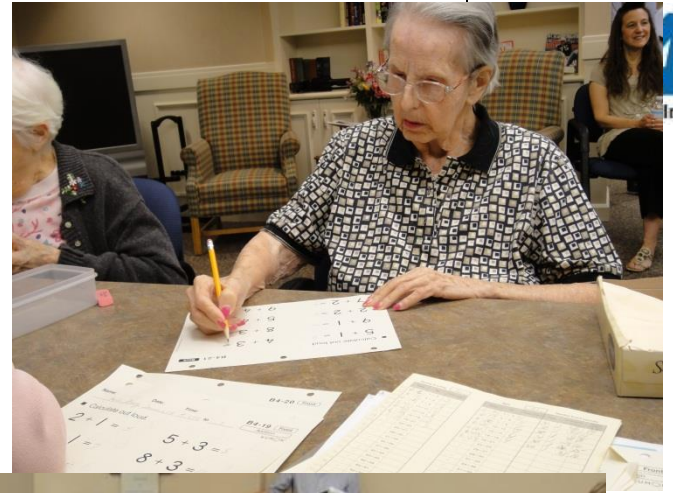
Made new friends

Became less forgetful



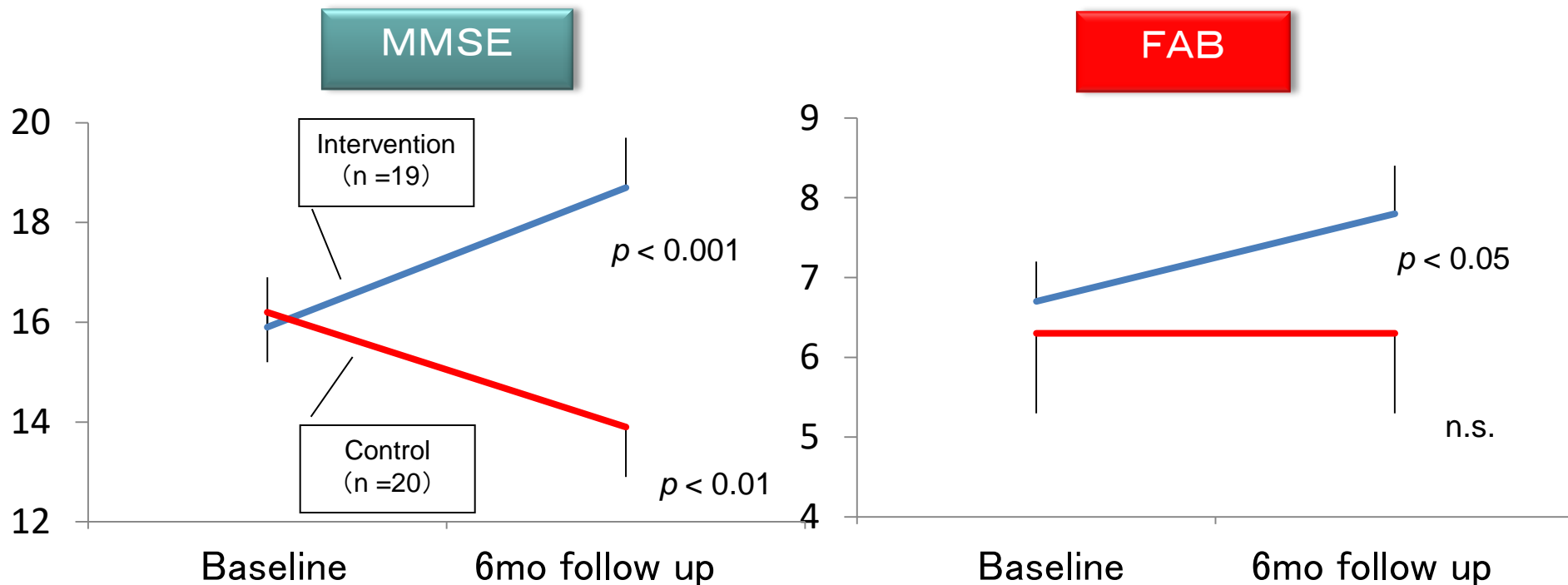
Learning Therapy has been exported to the USA since May, 2011






Changes in Neuropsychological Characteristics

Much improvement for the intervention group compared to the control group on standard mental assessments



MMSE: Mini-Mental State Examination
FAB: Frontal Assessment Battery at Bedside

Error bars indicate SEM



Thank you!
Hiro Murata
hiro@hiroyukimurata.jp