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Dr. Kawashima is a Director of Institute of Development, Aging and Cancer, Tohoku University from 2014. He has succeeded in developing and spreading the use of a new system to improve the cognitive function of senior citizens suffering from senile dementia as well as healthy people by top-down application of the findings of basic research involving functional brain imaging.

Through industry-university cooperative Research & Development, he succeeded in developing a new category of industry with the concept of 'train your brain„ and created educational, publishing, IT, and entertainment industries to improve brain function. His scientific output includes over 250 peer reviewed papers and the 200 books.

Development of new forms of entertainment in an aging society

As of April 2016, the percentage of elderly people in Japan aged 65 and older has exceeded 25%. This is an unprecedented ratio making Japan the world~~'~~s first super-aging society. Consequently, by 2050, the aging population is estimated to exceed 40%. Thus, there is an urgent need to formulate specific countermeasures against a super-aging society.

Moreover, it is clear that we need intelligent personnel who are more than willing and capable of concentrating their efforts and abilities to deal with aging-related problems; otherwise, a remedy for growth in a super-aging society cannot be developed. Regrettably, current industries, governments and even academia around the world are nowhere close in preparing the cultivation of human resources to address the needs of the unprecedented super-aging population.

In spite of all this, we have been developing an approach to maintain and improve the brain and mental health of a diverse and complex society through interdisciplinary industry-academic collaborative researches, so that we can overcome many of the problems related to a super-aging society. One such collaboration is 'Entertainment and Smart Aging,. We strongly support that the concept of Smart-Aging reflects a positive acceptance of the later stages in life where aging is seen as a series of 'developmental stages toward intellectually maturity".

Nowadays in today~~'~~s society, entertainment (such as games, TV programs, movies, and so forth) is crucial for us to lead fulfilling lives as entertainment is an extremely influential medium that directly affects the human brain and mind, impacting the lifestyles of every individual. Surprisingly however, the effects of such entertainment on the human mind and body have yet been addressed with scientific clarification thus far.

Therefore, we address two points:

1) How entertainment relates to the way individuals and societies can mature intellectually, while effectively dealing with the changes associated with aging through academic researches.

2) How entertainment should be developed to promote the establishment of a smart-aging society through industry-academy collaborations.

Although our results suggest that most forms of entertainment inhibit activity of the prefrontal cortex, which can have negative effects on cognitive functions, we have also succeeded to create some forms of entertainment that can activate the prefrontal cortex with beneficial effects on cognitive functions. In this key note presentation, I will explain our experiences of those industry-academy collaborations and the efficacy of our systems for seniors, as well as for young university students.