

What are the Grand Challenges toward the 22nd Century?

Frontline Research on Well-being

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Motivation: "I want to help people learn, grow, and achieve an optimal state of well-being."

Yoshiki earned a bachelor's degree in Health Science from the University of Tokyo, a Master of Science in Health Policy and Management from Harvard School of Public Health, and a PhD in Medicine from Jichi Medical School. As a public health researcher, entrepreneur, and science journalist, Yoshiki is working at the intersection of science, business, and government as a catalyst with the aim of advancing the well-being of society.

20th-century Light and Shadow

Measurement is the basis of science. Measurements provide data from which knowledge can be extracted and used to develop innovations in areas like policy or technology. The human race has advanced by accelerating this "Data, Knowledge, Innovation" pipeline.

My own field of public health has long paid attention to and recorded data on life span. In 1800, for example, the average lifespan globally was around 29 years. Of course, this figure was heavily influenced by the large numbers of children who died in infancy. It was also accompanied by large numbers of people who enjoyed a long life. This begs the question: why do some die young while others live to old age? Study of the data has taught us many things about what makes for a long healthy life and this has led to innovations in health policy and business practice.

What has happened as a result? Astonishingly, the average human life span has increased to 72 years. Moreover, this figure is predicted to rise to 82 years by the time we reach the next

century. Given this, I expect that readers will find themselves beset by a number of doubts that I will now address.

Does this Mean that People are Better off?

To create a society in which people enjoy long lives has been an unfulfilled dream of humanity. And yet, being presented with the prospect of such a society brings forth a wide variety of views, such as people asking what the point is of merely living for a long time, or saying that they do not want to live so long as to be a burden on others. Simply put, it seems as though a shift is taking place toward people asking what it means to live well, becoming more concerned with the quality of life than its duration. In response, the field of public health has started recording data not only on average lifespan, but also on healthy lifespan (how long people are able to live independently in good health) and well-being (levels of happiness and satisfaction).

One example involves data from Japan that has astonished social scientists around the world. In 2002, a team led by Dr. Edward F. Diener, one of the founders of well-being research, published findings on how the life satisfaction of Japanese people had changed over the period from 1958 to 1987. Their results showed no change at all in satisfaction over this 30-year post-war period. I too, on seeing these results, found myself forced into a major reappraisal of what exactly is meant by human progress.

It goes without saying that the human race has to date placed an emphasis on data such as average lifespan and per capita GDP, and has sought to make improvements in these parameters. We did so because we believed this led the way to a better society. But what is the reality? There is no doubt that life has become more convenient, with people living longer and enjoying greater economic prosperity. And yet it remains the case that all this progress has left people feeling no real sense of enrichment.

This does not mean that all the efforts to date have been wasted. It seems likely that future historians will look back on the 20th century as a golden era in which the three great scourges of disease, poverty, and war from which people have long suffered were largely overcome. Unfortunately, the elimination of suffering does not in itself make people feel that their lives are meaningful, happy, and fulfilling. This is a conclusion

that did not become apparent until we started collecting data on well-being. In other words, it appears very likely that the elimination of negatives and the accentuation of positives are two different things.

Global society is currently pursuing the Sustainable Development Goals (SDGs) as a way of achieving sustainable living. However, the SDGs are primarily intended to mitigate negatives and overlook the quality of life (subjective well-being) considerations discussed above. Accordingly, “Designing Future Society for Our Shining Lives” has been chosen as the theme of World Exposition 2025 Osaka, Kansai with the aim of conveying to global society that this reference to people’s lives embodies not only the achievement of the SDGs, but also the matters that need to be discussed regarding what is to follow these goals that have a cutoff date of 2030.

Achieving Innovation for Well-being

I would like to use the remainder of this article to say something about my own activities. My own belief is that humanity will continue to advance by accelerating the process of moving from data to knowledge to innovation. Along with this, I also see that innovating for well-being represents a grand challenge that we will need to address in the lead up to the 22nd century. It goes without saying that the acquisition of data on well-being will provide the basis of this work.

This poses the question of how to measure such inherently subjective phenomena as people’s levels of happiness and satisfaction.

The person who has laid the foundations for doing just this is the American researcher of public opinion, Dr. Hadley Cantril. He invented what is known as the Cantril Ladder, which asks people to rate their current life on a scale from zero (their worst possible life) to 10 (their best possible life).

Because this very simple technique is one that people can respond to intuitively no matter where in the world they are from, it has become today’s global standard for measuring subjective well-being. The United Nations publishes an annual World Happiness Report that uses the Cantril Ladder as its scale for measuring happiness throughout the world. Unfortunately, the technique has two fundamental problems.

The first is that the concept of imagining one’s life as a ladder is a very western one. Indeed, its model seems to be Jacob’s ladder that appears in the Old Testament Book of

Genesis, in which one gets closer to heaven the higher one climbs. In Japan, in contrast, we have the concept that does not exist in the English language of being made fearful by too much happiness, and the idea of climbing a ladder is not one that strikes people as desirable. In fact, Japanese people tend not to want to score themselves a 10 (best possible life) in the United Nations survey. It may be that many Japanese see life as a pendulum. Life is a mix of good and bad, and rather than the maximum, the ideal is to find a happy medium. Likewise, other parts of Asia, the Middle East, and Africa likely view their lives from their own distinctive points of view, which may well not be that of a ladder.

A second problem is the frequency of measurement. The technique devised by Dr. Cantril works by asking people directly. The problem is that a person’s feeling of well-being is dynamic and may differ between morning and night of the same day, whereas the current practice only provides a result for a single point in time.

Our aim, then, is to revolutionize how well-being is measured so as to resolve both of these problems at once. This involves the following actions.

- (1) Finding a new definition of well-being.
- (2) Using smartphones or other sensors to measure well-being in real time across the globe

Imagine a time when people’s well-being is able to be measured in real time around the world in much the same way as stock prices or the weather. How much new knowledge and innovation could come about from such a development? While this may sound like a dream scenario, I have found that a surprising number of colleagues have a similar idea and moves to achieve just this are happening internationally right now. While it is certainly a very modest undertaking, I would love to hear from anyone who is in sympathy with the ideas described above.