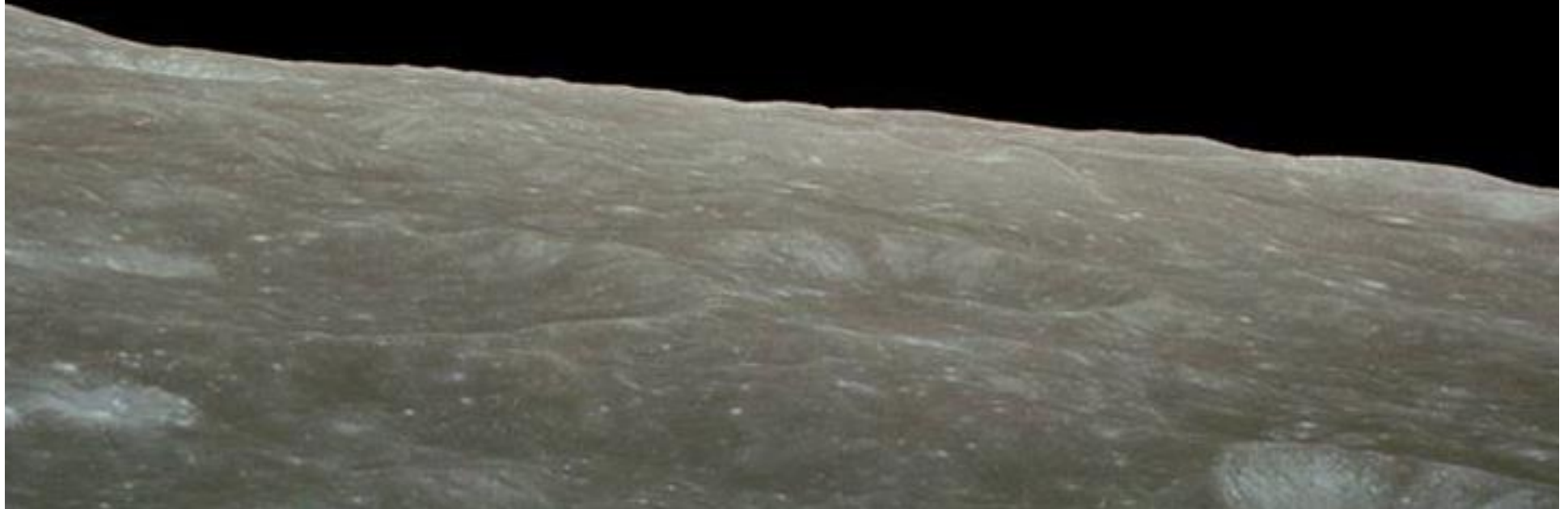


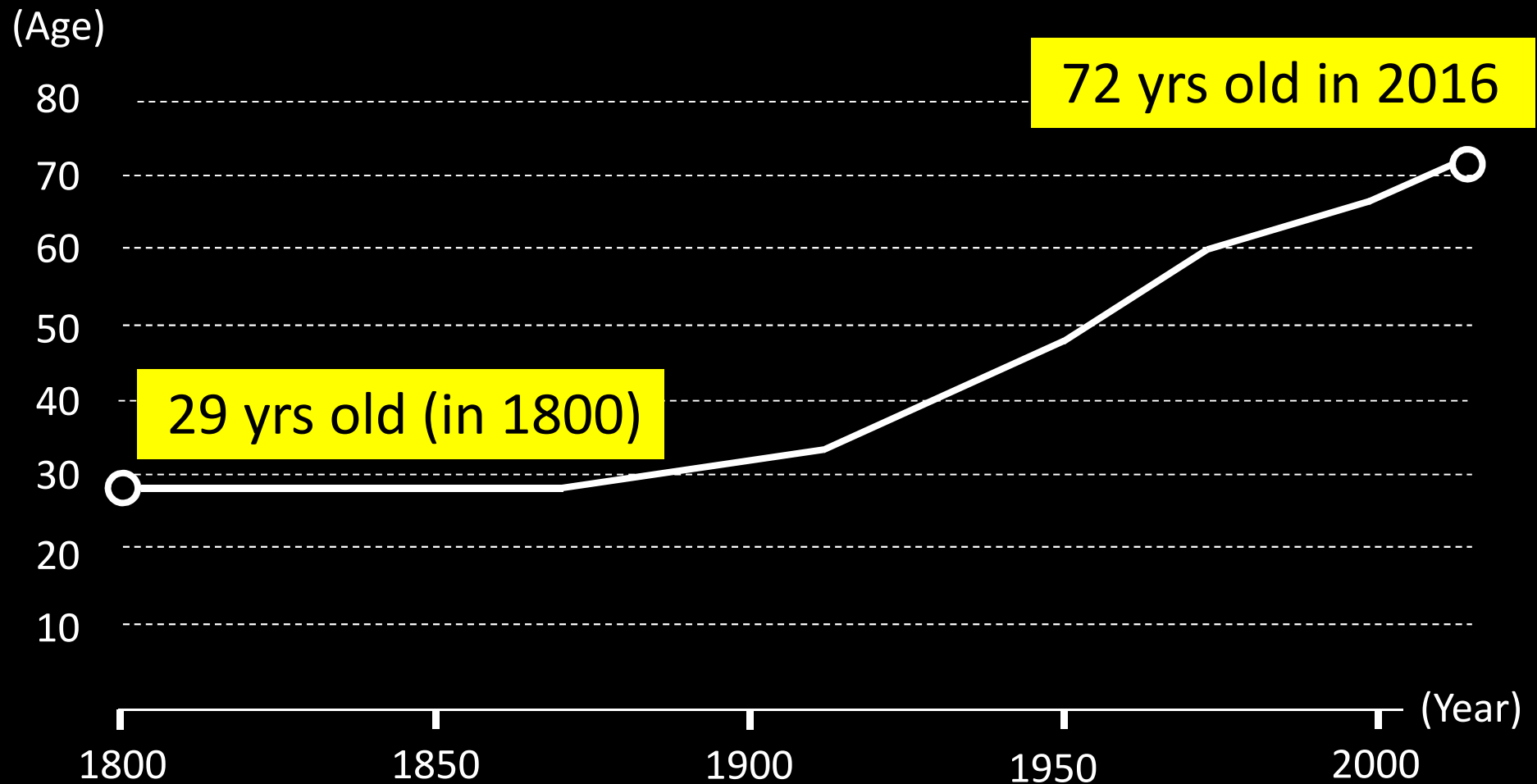


# Grand challenges on well-being toward the 22<sup>nd</sup> century

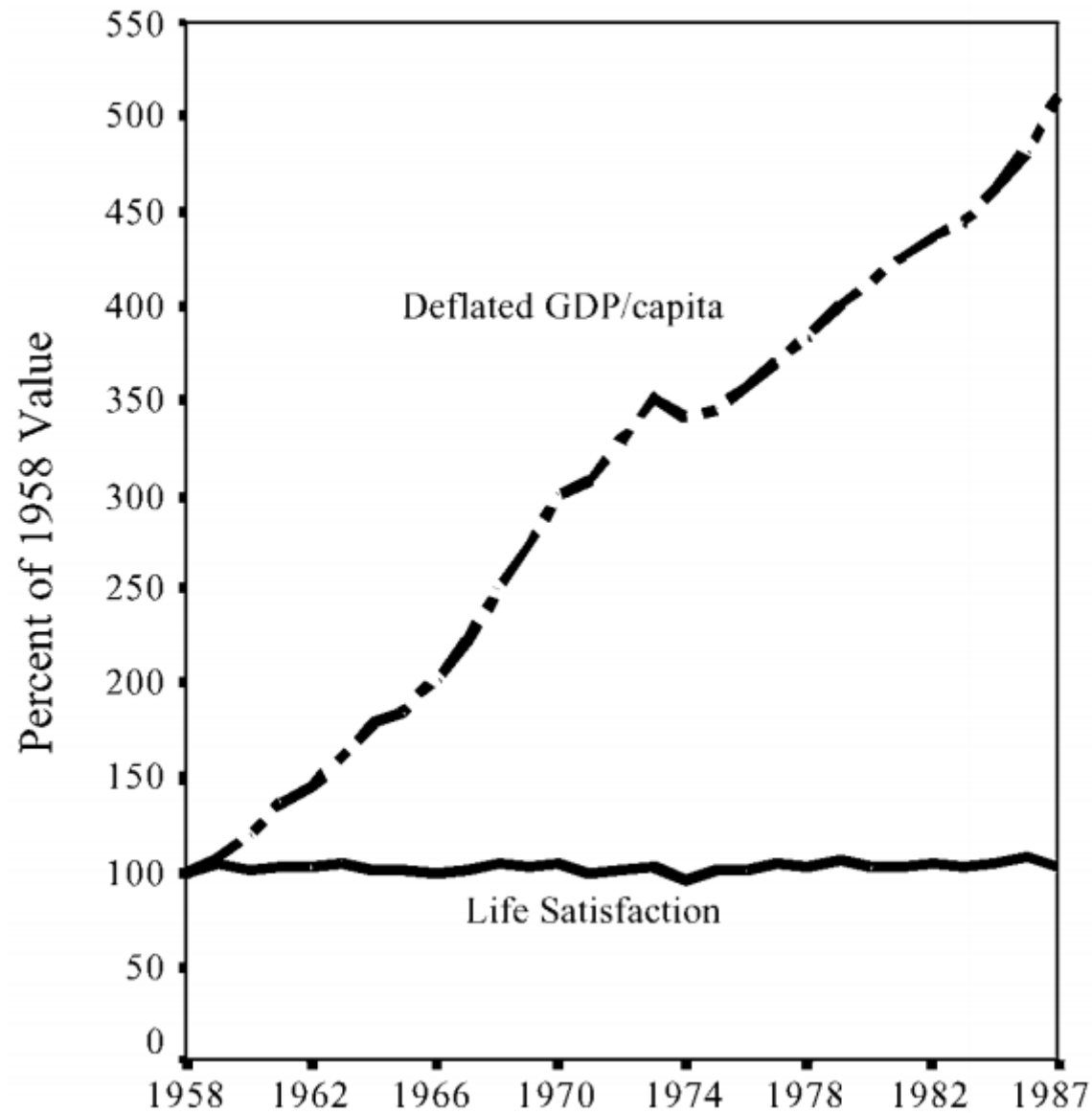
Yoshiki Ishikawa, PhD



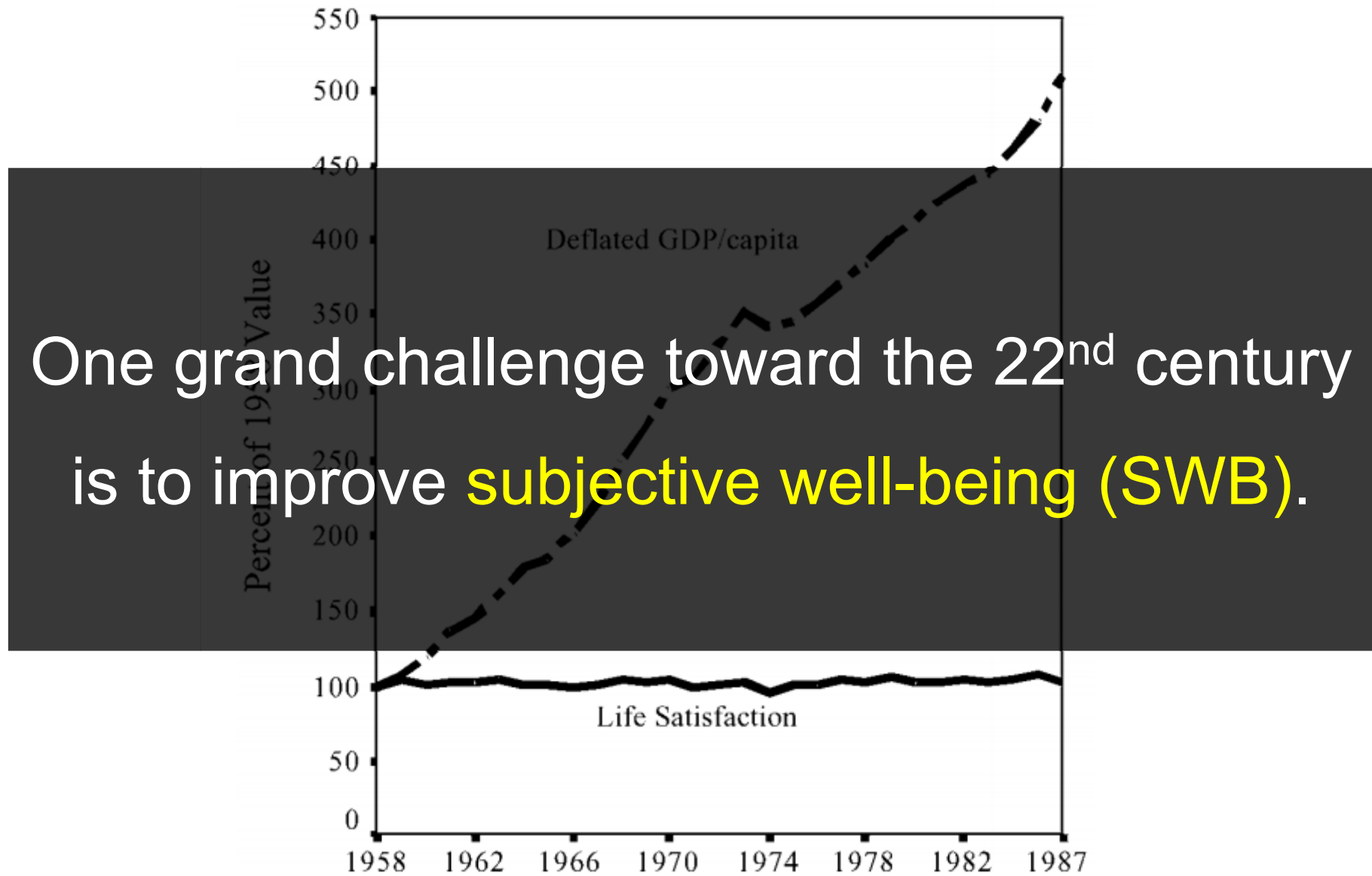
# Life expectancy at birth of the global population



# Subjective Well-Being in Japan (1958-1987)




# Subjective Well-Being in Japan (1958-1987)




Why has SWB not improved in the past century?

Case 1: Rural Japan in the 1950s





I don't want a washing machine, since it just increases the time for farm work and decreases the fun time for chatting with neighbors.

A person is shown from behind, crouching in a shallow stream and washing clothes. The water is clear and the surrounding area appears to be a rural, outdoor setting. The person is wearing a dark, long-sleeved shirt and shorts. The stream is bordered by dry earth and some sparse vegetation.

Why has SWB not improved in the past century?

Case 2: Changes in time allocation in the U.S.



ALAN B. KRUEGER

*Princeton University*

## *Are We Having More Fun Yet? Categorizing and Evaluating Changes in Time Allocation*

ARE AMERICANS SPENDING THEIR time in more or less enjoyable ways today than in earlier generations? The answer to this question is central for understanding economic and social progress yet has been elusive and controversial. From 1965–66 to 2005, for example, working-age American women increased the amount of time spent working for pay, watching television, and caring for adults while they reduced the amount of time spent cooking, cleaning, entertaining friends, and reading books. Do these shifts imply that women are better off or worse off?

ALAN B. KRUEGER

*Princeton University*

## *Are We Having More Fun Yet?*

*Categorizing and Evaluating  
Changes in Time Allocation*

Changes in time allocation (1965-2005)

✓ Unpleasant time: Decreased

✓ Pleasant time: Not changed

✓ Neutral time: Increased

ARE AMERICANS HAVING MORE FUN in more enjoyable ways today than in earlier generations? The answer to this question is central for understanding economic and social progress, yet has been elusive and controversial. From 1965–66 to 2005, for example, working-age American women increased the amount of time spent working for pay, watching television, and caring for adults while they reduced the amount of time spent cooking, cleaning, entertaining friends, and reading books. Do these shifts imply that women are better off or worse off?

## Questions:

How might we understand the nature of subjective well-being of the humanity?

How might we seek what can be done toward the 22<sup>nd</sup> century by the joint efforts of academia, government and commercial industry?

One basic but imperative idea is to collect massive & real-time data on SWB.



If we treasure it, measure it.

If we measure it, treasure it.



Three challenges for collecting quality data on subjective well-being

✓ Global survey on SWB is on a yearly basis

The World Poll is based on a framework called the Gallup Macroeconomic Path, a leadership model for successful societies. Each step on the path links to a set of survey questions that Gallup asks across each country. This approach makes it possible to track historical trends and make direct cross-country comparisons.



*\*Gallup Macroeconomic Path: a leadership model for successful societies*

Gallup conducts nationally representative surveys face to face or via telephone in more than 160 countries and over 140 languages, covering the emerging and developed world.

# World Happiness Report 2019

The World Happiness Report is a landmark survey of the state of global happiness that ranks 156 countries by how happy their citizens perceive themselves to be. This year's World Happiness Report focuses on happiness and the community: how happiness has evolved over the past dozen years, with a focus on the technologies, social norms, conflicts and government policies that have driven those changes.

[Explore the Report](#)

MARCH 20, 2019



# Subjective Well-being (SWB)



Positive affect

Negative affect

Life evaluation

Well-rested

Physical pain

Smile

Worry

Enjoyment

Sadness

Treated with respect

Stress

Learn/do something interesting

Angry



Best possible life  
(10)



Worst possible life  
(0)



	<u>Positive affect</u>	<u>Less Negative affect</u>	<u>Life evaluation</u>
1st	Panama	Taiwan	Finland
2nd	Mexico	Singapore	Denmark
3rd	Uruguay	Mauritius	Norway
	⋮	<b>Japan</b>	⋮
	⋮	<b>(11th)</b>	⋮
	⋮		<b>Japan</b>
	⋮		<b>(58th)</b>
	<b>Japan</b>		
	<b>(77th)</b>		



Three challenges for collecting quality data on subjective well-being

- ✓ Global survey on SWB is on a yearly basis
- ✓ **Most data on SWB is from the west**

“As is true for the social science in general,  
the field of SWB is heavily dominated by  
Western researchers... 70% of all data on SWB  
is from populations in Europe or North America  
(Tov and Au, 2013).”

“The strongest models in SWB research hardly manage an  $R^2$  of 0.40... and generally lower explanatory power in Asia, Africa and Latin America (Helliwell et al., 2009).”

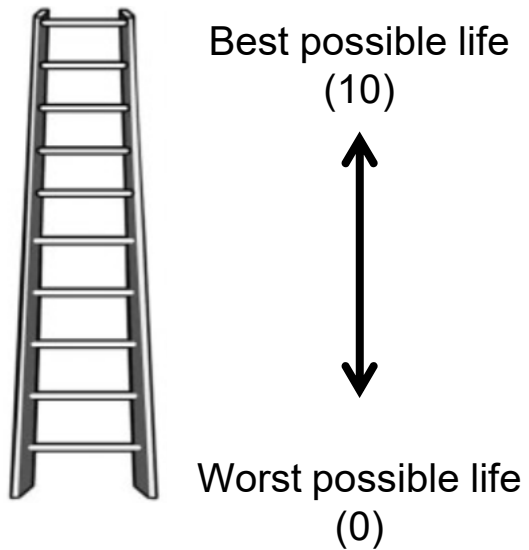


Three challenges for collecting quality data on subjective well-being

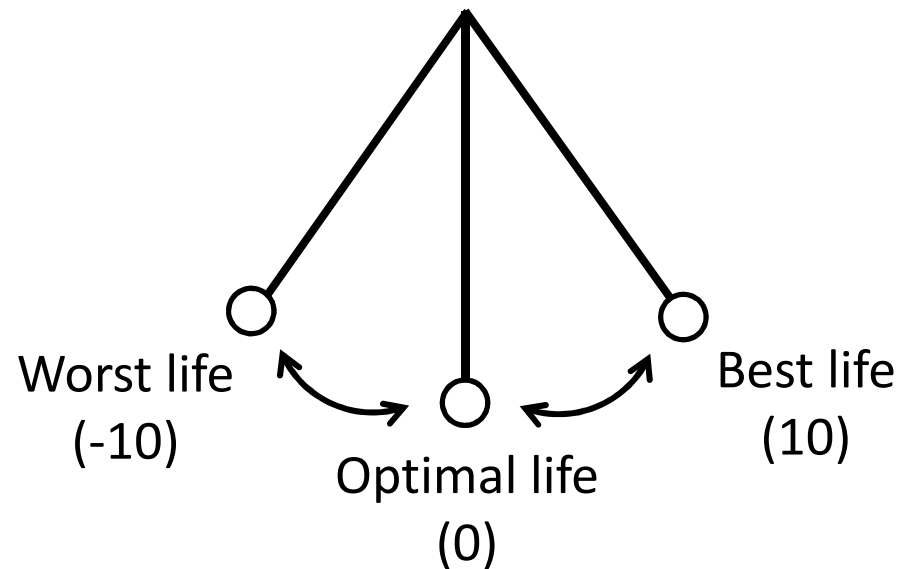
- ✓ Global survey on SWB is on a yearly basis
- ✓ Most data on SWB is from the west
- ✓ **Need for reinventing the concept of SWB**

# Is ladder a good metaphor for evaluating good/bad life?

## Cantril's ladder (1965)



## Japanese metaphor



What I believe.

Grand challenges on well-being toward the 22<sup>nd</sup> century



“Reinvent and Reintegrate Well-being into our  
Everyday Lives, so that we can breathe well-  
being without even being conscious about it.”

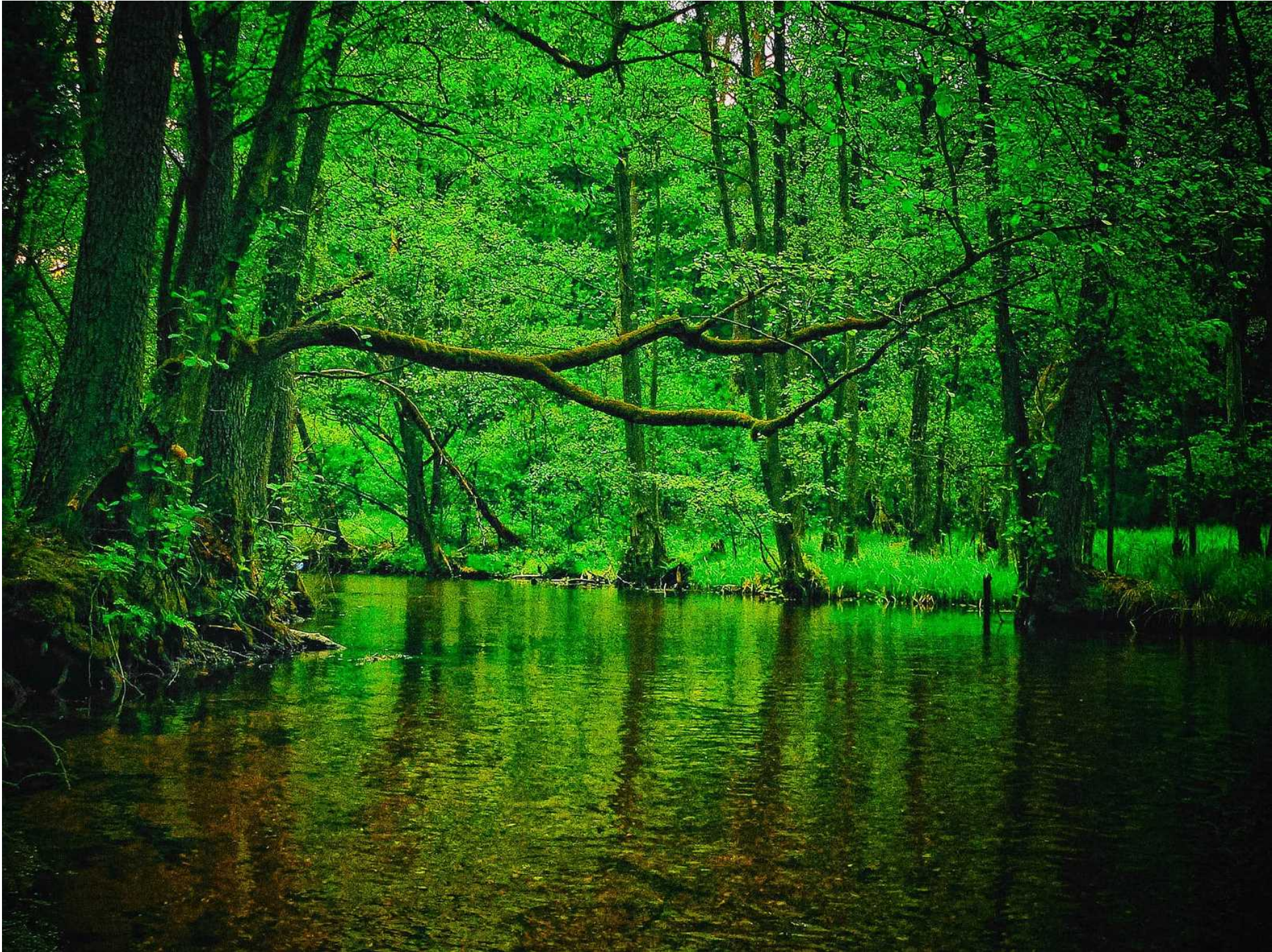


Example:

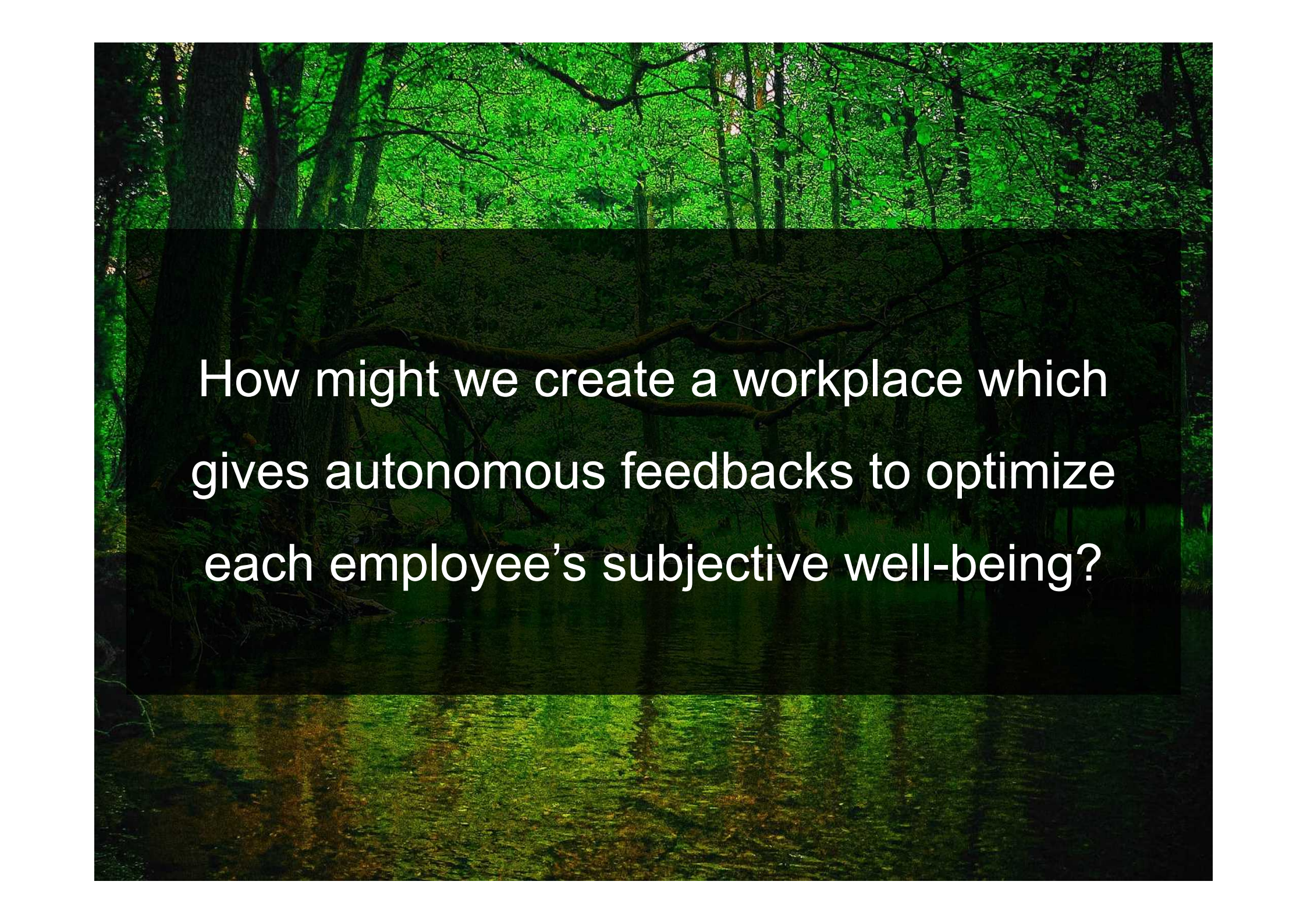
Human-Environment interaction for optimizing  
well-being at workplace









A lush green forest with a stream in the foreground, serving as a background for the text. The scene is filled with vibrant green foliage and tall trees, with the water in the stream reflecting the surrounding greenery.

How might we create a workplace which gives autonomous feedbacks to optimize each employee's subjective well-being?



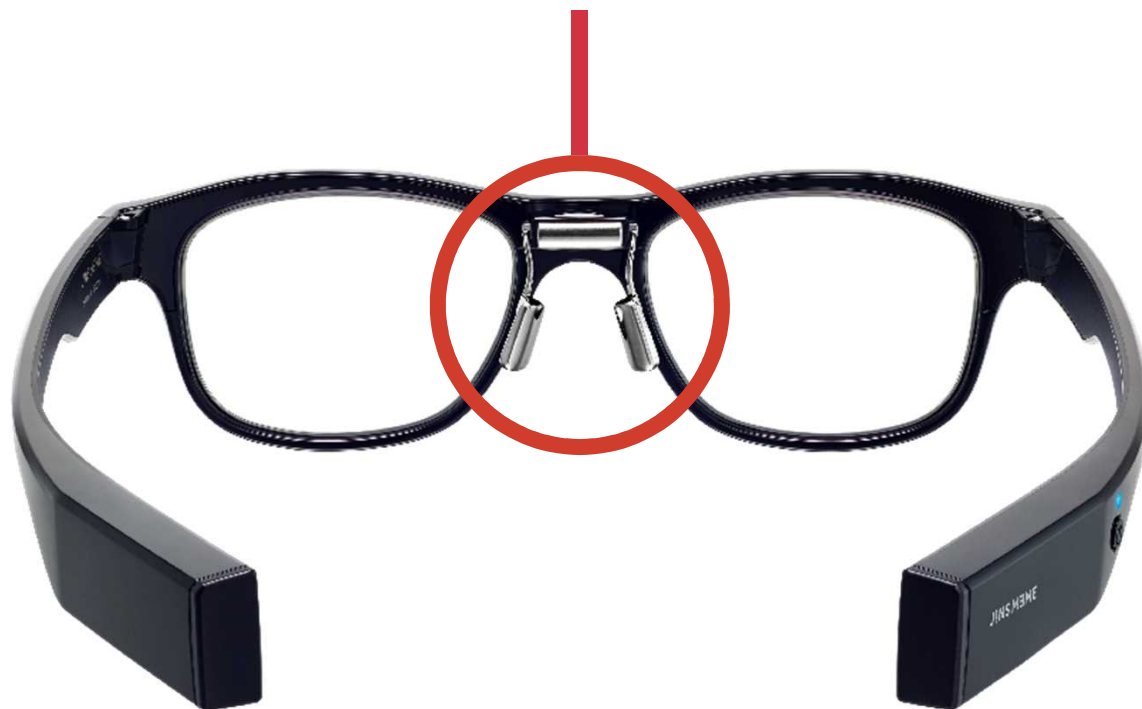


**JINS MEME**

Eye has a potential.

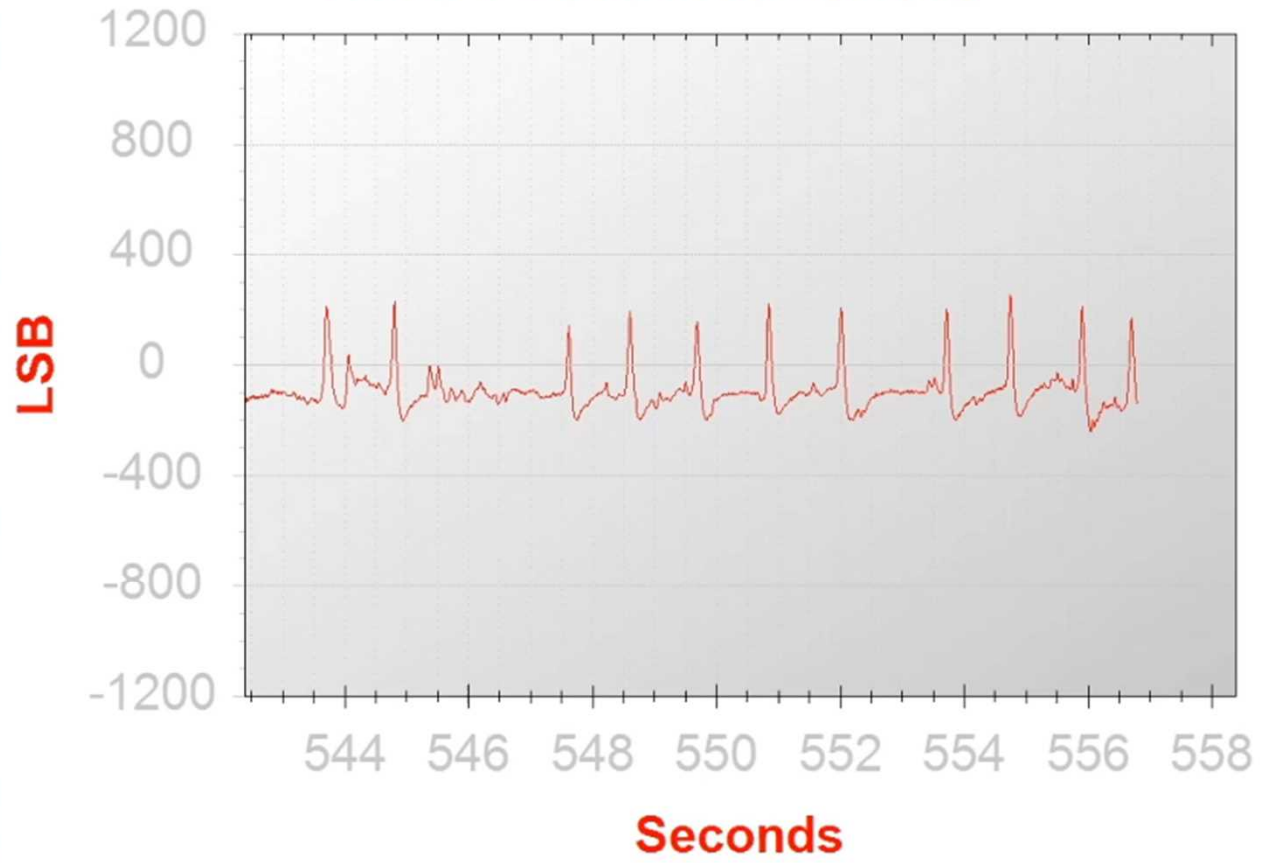


# Sensor for measuring eyeball potential





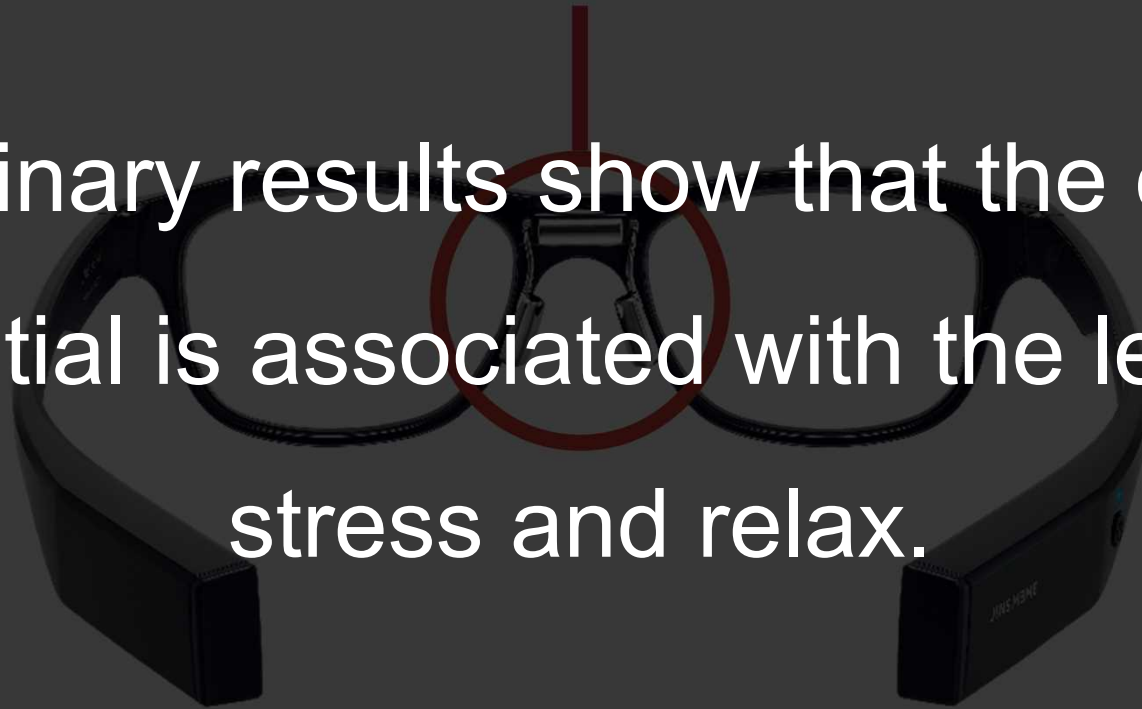
**Chart1 : Electrooculography**



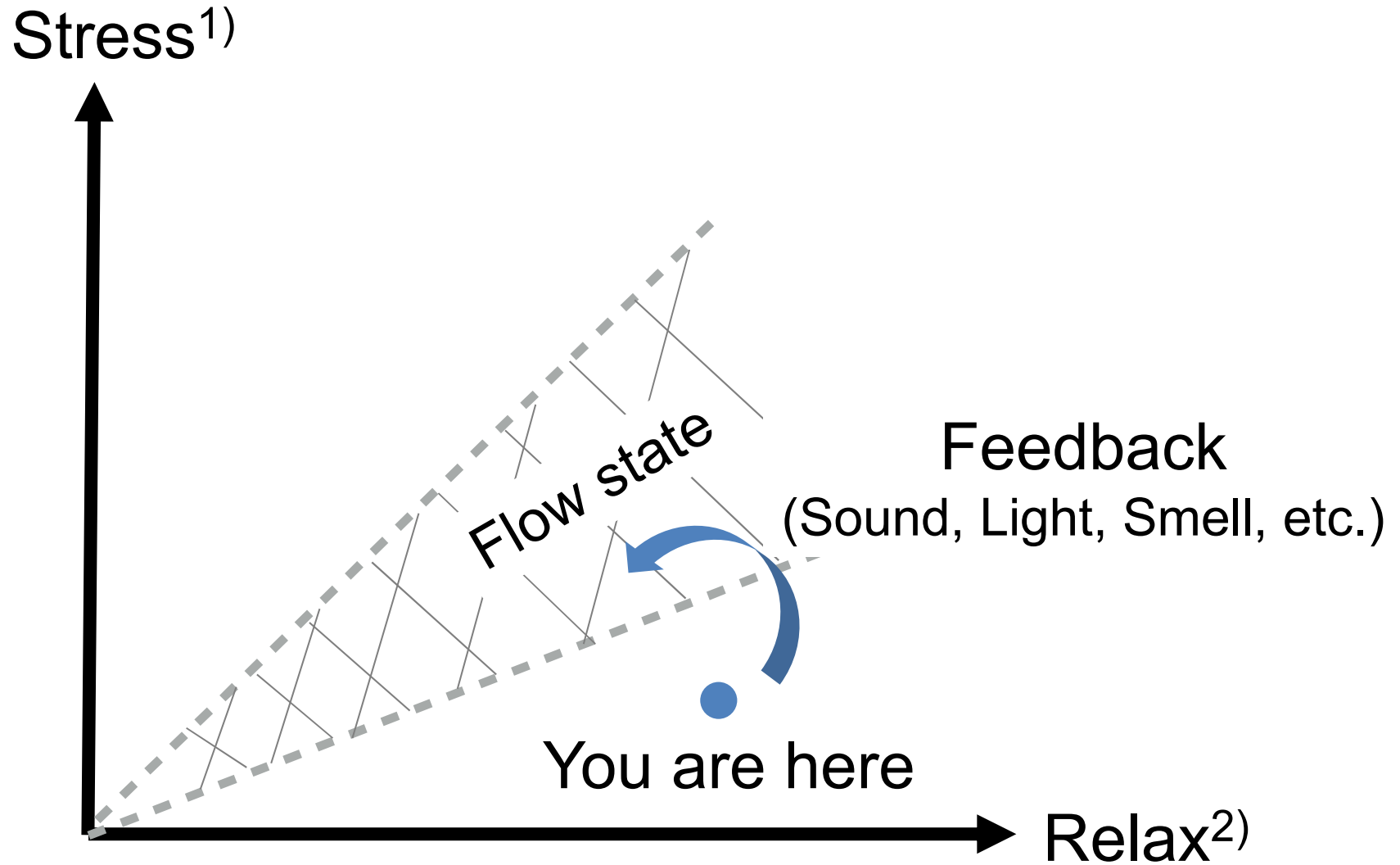


Sensor for measuring eyeball potential

Preliminary results show that the eyeball potential is associated with the level of stress and relax.

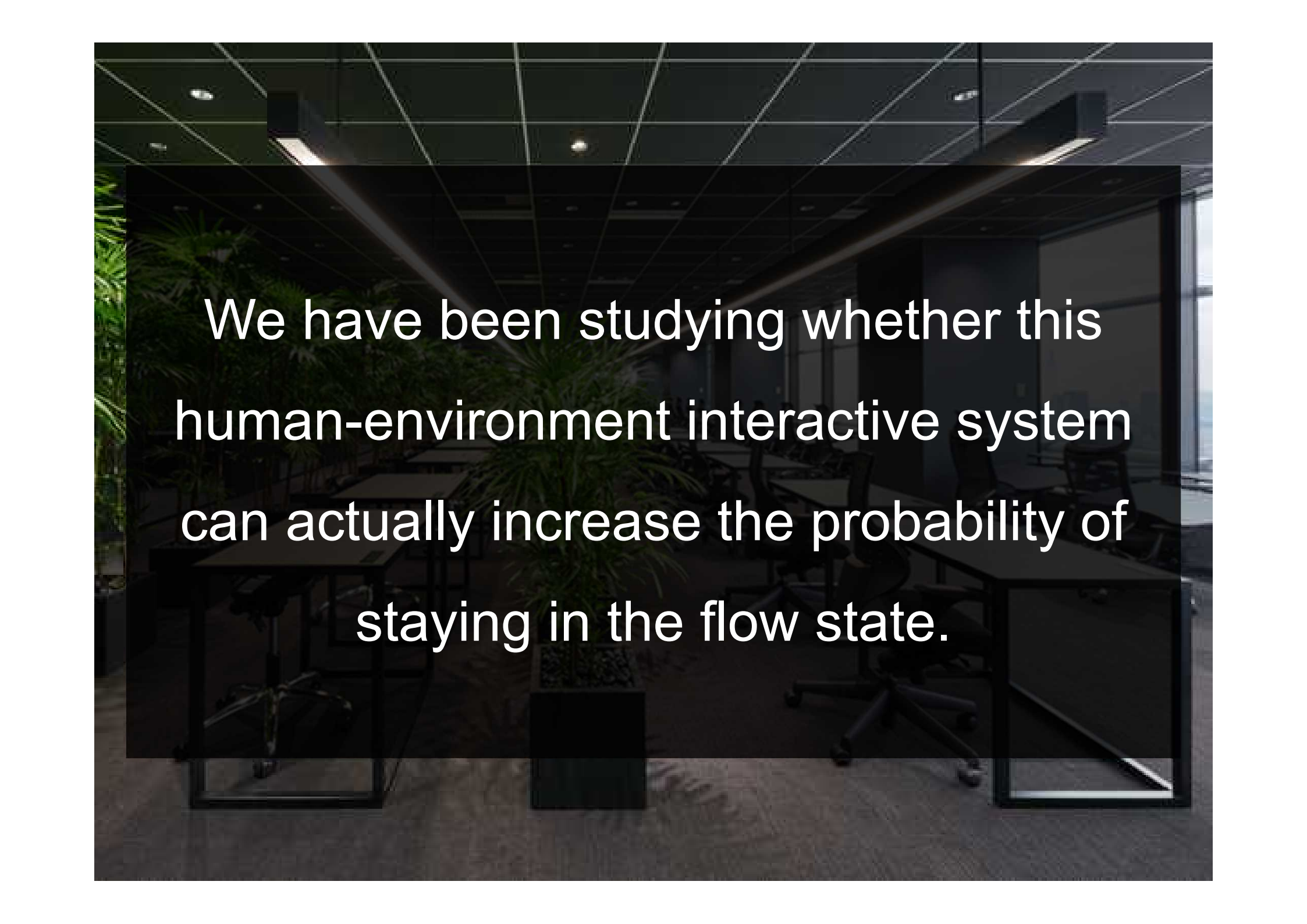


# Is ladder a good metaphor for evaluating good/bad life?



1) Level of stress is associated with "# of blink / minute"; 2) Level of relax is associated with "stability in blink pattern."





We have been studying whether this human-environment interactive system can actually increase the probability of staying in the flow state.