

**R&D Theme**

**Development and Measurement of Maemuki (Forward-looking) indices**

**Progress until FY2022**

**1. Outline of the project**

Our R&D theme aims to conceptualize Maemuki (forward-looking), develop a subjective index for it (“Maemuki scale”), and establish a method for estimating the subjective degree of “Maemuki” from physical/physiological/neurological information.

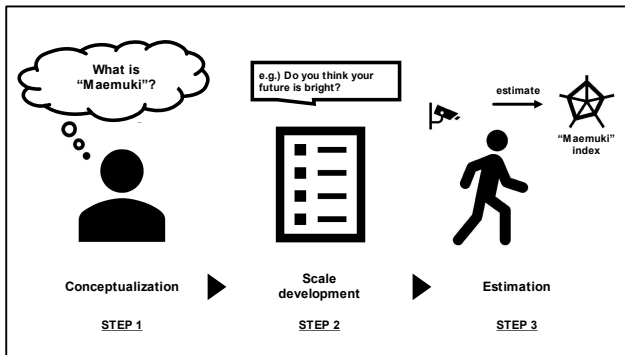


Fig.1 Outline of our R&D theme.

In FY2022, the first year of our R&D theme, we began conceptualizing “Maemuki” and developing a subjective index of it (“Maemuki scale”). We also prepared for laboratory experiments to estimate subjective “Maemuki” from physical/physiological/neurological information.

**2. Outcome so far**

- Conceptualization of “Maemuki” and Development of the subjective index for it (“Maemuki scale”)

We conceptualized “Maemuki” by both deductive (top-down) and inductive (bottom-up) approaches. The deductive

approach included discussion in a working group that consisted of researchers who have various specialties (e.g., cognitive neuroscience, clinical and sports psychology, biomechanics, psychiatry, and philosophy) and literature reviews of existing related concepts. The inductive approach included semi-structured interviews on “Maemuki” with healthy adults (Dr. Yamada’s group; National Institutes for Quantum Science and Technology: QST) and top athletes (Dr. Kashino’s group; NTT).

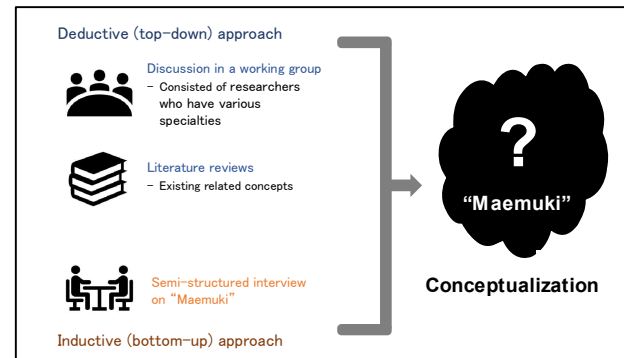


Fig.2 Procedure of conceptualization of “Maemuki”

Groups of Dr. Yamada and Dr. Hamada (Araya Inc.) applied natural language processing methods to the obtained interview data to conceptualize “Maemuki” in addition to typical qualitative methods.

Based on this, we developed a preliminary version of the “Maemuki Scale” (a subjective index for “Maemuki”; undisclosed at this time).

- Preparation for laboratory experiments

In collaboration with groups of Dr. Hirao (National Institutes for Quantum Science and Technology) and Dr. Sado (University of Tsukuba), Dr. Yamada’s group set up the laboratory experiments to estimate the subjective degree of “Maemuki”

from physical/physiological/neurological information. To be specific, we selected the indices of psychological, physical, physiological, and neurological aspects that have possibilities to represent the subjective degree of “Maemuki”. We also conducted some preliminary experiments using the indices above to prepare for full-scale experiments to be launched in the following fiscal year and beyond.

**3. Future plans**

In FY2023 and beyond, we will conduct (1) the reliability and validity examination of the preliminary version of the “Maemuki scale”, and (2) the multidimensional (i.e., psychological, physical, physiological, and neurological aspects) assessment experiment. Based on these results, we will also start to develop the preliminary version of the application tentatively named “Body2Positive” which estimates the subjective degree of “Maemuki” from physical and/or physiological information.

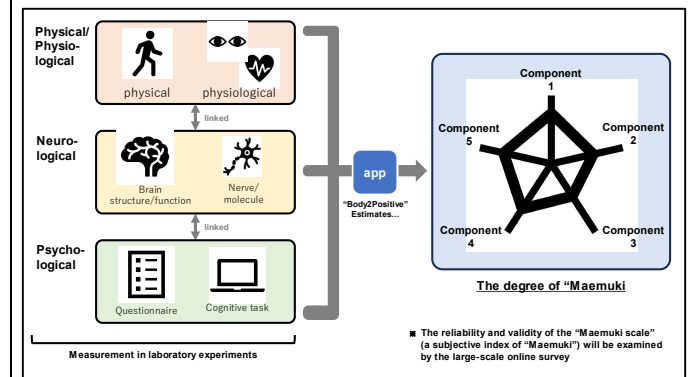


Fig.3 Our future plan