Goal9 Realization of a mentally healthy and dynamic society by increasing peace of mind and vitality by 2050.

Integration of Asian humanities and brain informatics to enhance peace and compassion of the mind

Here begins our new MIRAI

MOONSHOT
RESEARCH & DEVELOPMENT PROGRAM

R&D item

3. Social Implementation

Progress until FY2023

1. Outline of the project

While advancing the study of Buddhist texts, we have developed a broad framework for meditation to be implemented via a smartphone app. We categorized human types based on afflictions mentioned in the scriptures and organized basic meditations for each type. This process helps tailor meditation selections to individual personalities. Concurrently, we progressed in developing the app, which must faithfully replicate the content from our research and withstand large-scale intervention experiments. We have initiated the creation of this app and completed the first of several meditation training programs, along with a preliminary experimental design.

2. Outcome so far

R &D 1: Buddhist textual Survey and Meditation Design

(1) Content creation for meditation app narration and more

In our meditation app, we aim to control automatic thinking by focusing on "awareness" and cultivating "compassion" through a 21-day course (See Fig. 1). We've developed four tailored meditation courses (addressing greed, anger, ignorance, and unbiased types) based on traditional practices. Additionally, the app includes meditations derived from Oriental perspectives to address issues like "loneliness/anxiety" and promote "positivity." We also integrated the app contents with the Oriental Meditation Archives. To validate the effectiveness and reliability of these

Fig 1: Outline for meditation training

meditations, we utilized biometric data and Digital Biomarkers (DBM), conducting preliminary experiments in collaboration with Professor Yoshiharu Yamamoto from the University of Tokyo. We are also exploring new analytical methods focusing on facial expressions, voice tone, and responses, in partnership with Professor Kalisch and Dr. Puhlmann from the Leibniz Resilience Research Institute in Germany.

(2) Creation of an archive for meditation literacy required for content creation

To promote the sustained effects of practice through the mobile app by enhancing meditation and motivating practice, we have started preparing to provide organized information on traditional meditation practices and their explanations, as well as insights and considerations from modern scientific meditation research (see Figure 2).
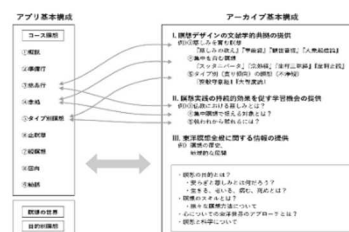

Figure 2: Correspondence between the Meditation App and the Oriental Meditation Archive

R&D 2: Large-Scale Intervention Experiment

(1) App Development

Specifications for an app to be used in a large-scale meditation intervention experiment have been compiled, and development has commenced. The app is required to handle experiments involving hundreds of participants. To meet this requirement, various features are planned to be incorporated into the app, such as a practice schedule function and a survey function.

(2) Creation of a prototype for meditation training content

Ultimately, the app will implement various meditation training programs. So far, one such program has been completed. This intervention program is based on the recent Mindfulness-based Intervention package. By creating this at an early stage as a prototype, we aim to optimize the development of app and future meditation training course. Moreover, it will allow for the comparison of newly developed meditation programs with this project in terms of effectiveness.

(3) Formulation of Experimental Design

An experimental design for conducting intervention research has been formulated, detailing the metrics to be used and the timing of measurements. Based on these decisions, the design underwent review by the University of Tokyo Ethics Committee, and approval was obtained for implementation.

(4) Conducting a Pilot Experiments

In collaboration with Yoshiharu Yamamoto, the PI, for different projects under Goal 9, a pilot experiments were conducted. These experiments were carried out over three days with participants in a meditation training program. Although it was a limited intervention, effects such as reduced anxiety were observed, exceeding expectations.

3. Future plans

To organize meditation systems, we will continue our textual study and work on creating meditation instructions based on Buddhist texts. Concurrently, we will advance the development of our app and begin large-scale intervention studies. Starting from the meditation retreat in Chiba this June, we will initiate a collaborative research project with the Leibniz Resilience Research Institute.