

Improving nutrition literacy through nutrition education Apps

Fujitsu Limited
Yasuaki Matsumoto

Nutrition Improvement Project Overview

Objective

- Find out if increasing nutrition literacy is effective in improving nutrition
- Find out if the "token economy" is effective in changing nutrition

Period and number of participants

Cambodia

December~March 2020: 100 Target: Local employees of Japanese companies

December~March 2021: 30 Target: Among the above, women in their 20s who are interested in maternal and child health (half are pregnant women)

*Conducted jointly with ILSI.

Ghana

Feb~Mar 2020 : 20

February~March 2021: 60

Participants Target: Women who are interested in maternal and child health and are raising children

*Conducted in cooperation with county hospitals and clinics

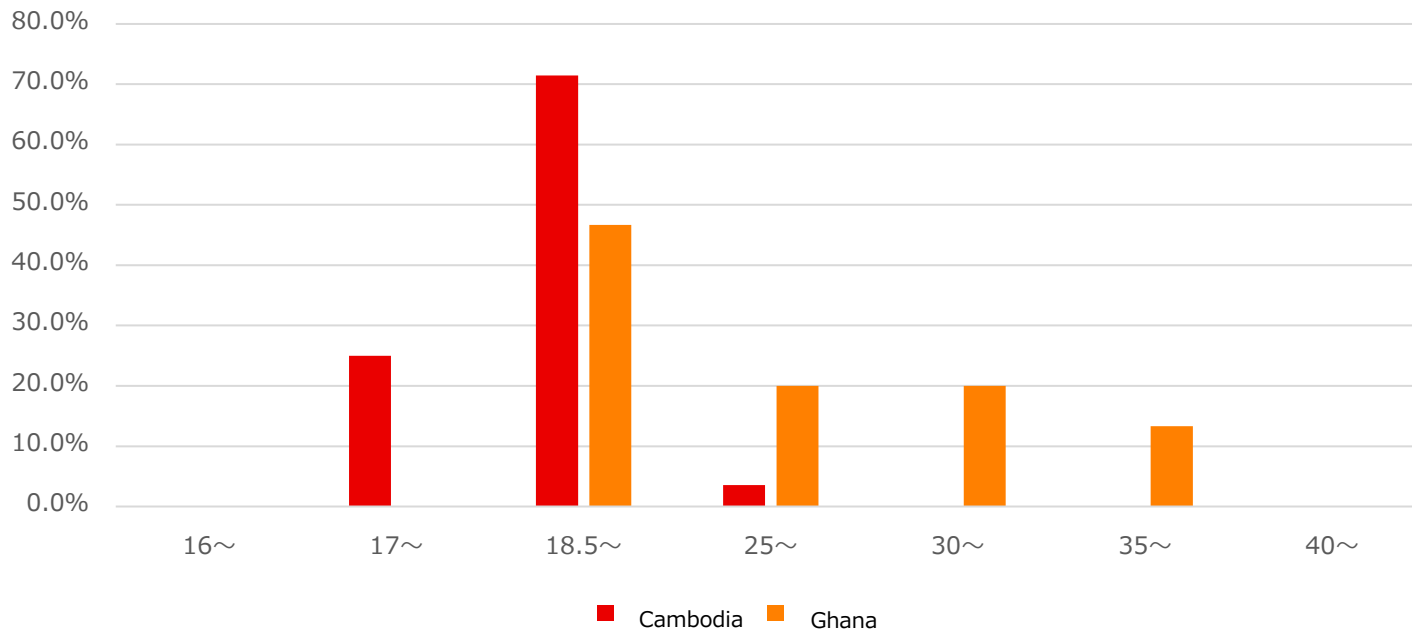
Myanmar

Jan~Mar 2023 : 200 Target: Local employees of Japanese companies

*Conducted jointly with ILSI and World Industries, Inc.

Distribution of participants' body mass index

Depending on the country/region and culture, there are regions where people are mostly thin and regions where people are mostly overweight. Knowledge of proper nutrition should be provided.



Systems Introduction

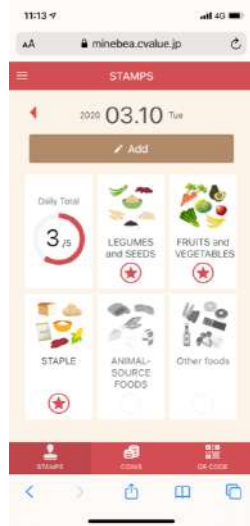
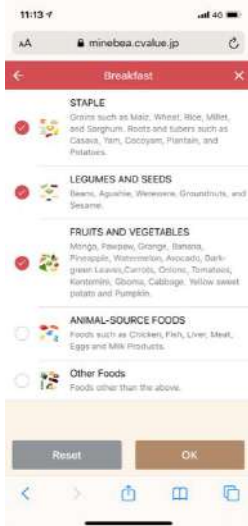
System flow

Three features of the program are recording dietary data, providing nutritional knowledge, and providing incentives to support continuity.

(1) Record stamps according to ingredients

(2) Quiz on nutrition

(3) Coin offer



Recording of dietary data

- We asked them to record the number of food items they consumed at each meal.
- If possible, we also asked them to send us images of their meals so that we could confirm the number of food items they consumed.

Cambodia



Ghana



myanmar

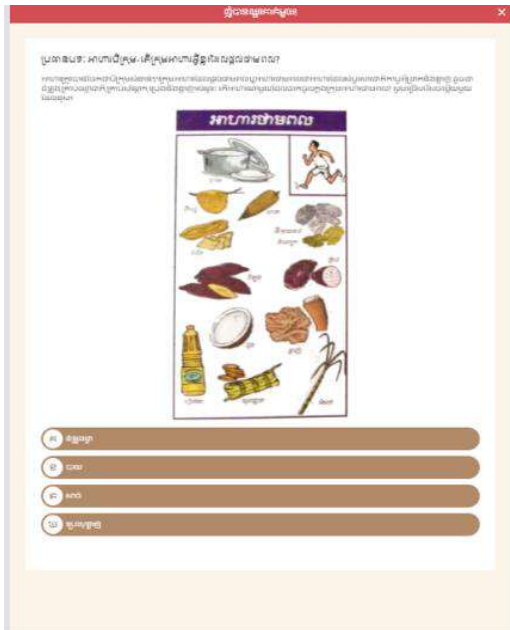


For foodstuff classification, Cambodia and Myanmar use ILSI's TAKE10 classification method. In Ghana, the 4STAR DIET SYSTEM is used, which is described in the Maternal and Child Health Handbook. Languages are provided in Khmer script in Cambodia, Myanmar in Myanmar, English in Ghana, and the local language, Chui (audio only).

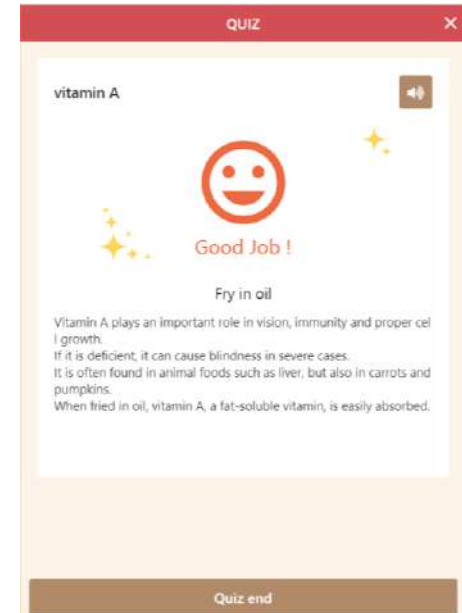
Providing nutritional knowledge

- When the number of ingredients recorded reaches the daily goal (4-6 ingredients/day, depending on the project), you can take a nutrition quiz
- Receive coins for correct answers to the quiz

Sample questions



Sample Responses



Provides digital coins with pictures and sounds

Gamification elements such as coins collected can be redeemed for incentive items and songs are played to encourage continued nutritional improvement while having fun.

Role of Coins

In Ghana, coins were redeemable for baby food, diapers, soap, and detergent, depending on the pattern.

In Ghana, some of the coins could be tapped to play a lullaby sung by the participants' mothers.

In Cambodia, coins were redeemable for coupons to purchase items at the company cafeteria, gift certificates to supermarkets, and daily necessities such as masks.

The coins are based on the blockchain system used for cryptocurrency, and can be expanded to include intra-company and local community currencies in the future.

Example of screen (Ghana)

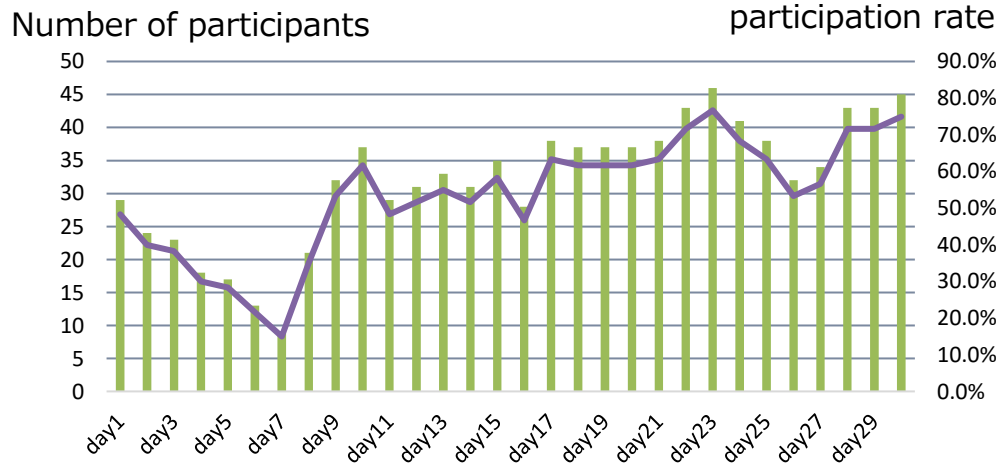


Project Outcomes

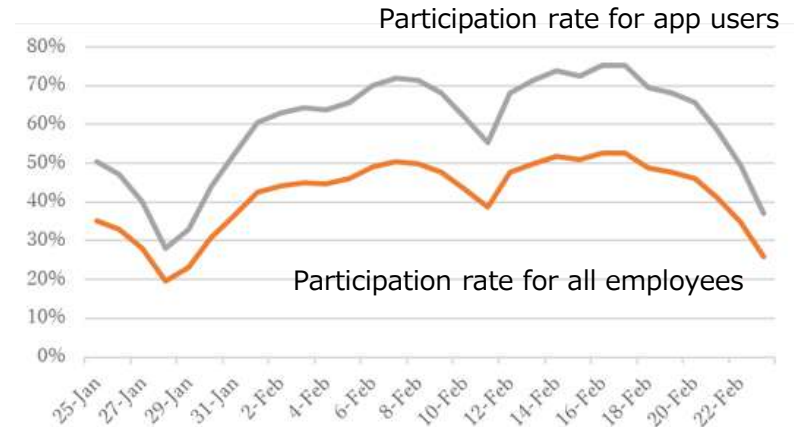
Number of participants and participation rate

- Projects with sufficient motivation, such as target selection and education, had higher participation rates. In Ghana, participation was particularly high among mothers with infants, perhaps because the project was limited to mothers with infants.

Ghana



Myanmar



Change in dietary diversity

- The number of food items recorded did not change noticeably within the project period for each project. However, analysis of the meal images showed a slight increase, with an average of 3.22 dinners at the beginning of the project and 3.88 dinners at the end (AI analysis). (Myanmar)

Ghana (600 Images)



Banku and fish with Stew

fufu with light soup

Jollof Rice

Rice and stew



Fufu and Groundnut soup

Rice and stew

Banku and fish with Stew

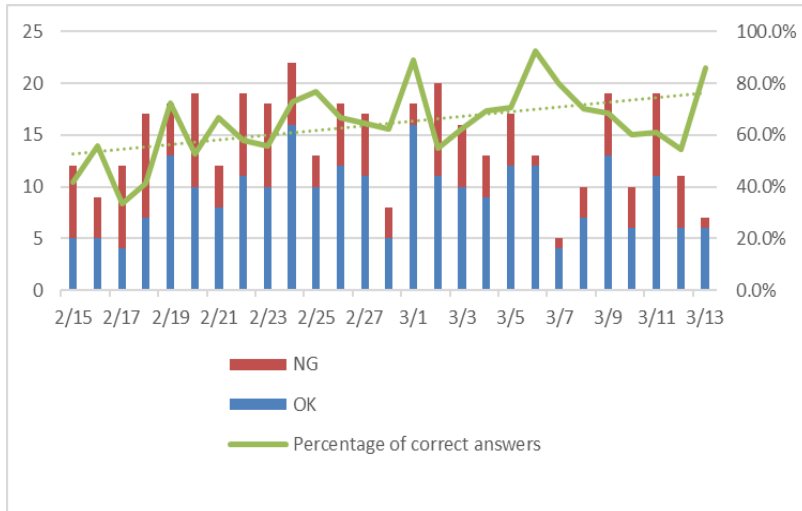
Myanmar (1400 Images)



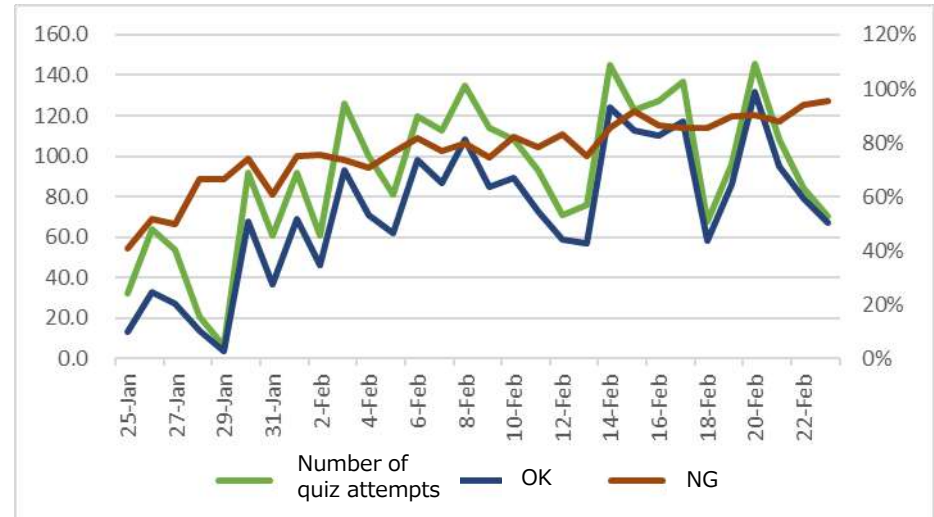
Number of Responses and Results of Nutrition Quiz

- Weekly correct response rates for the quiz showed a significant effect, increasing by 20% to 30% for each project

Cambodia



Myanmar



Number of quiz attempts

- **Nutrition knowledge and BMI vary widely by country/region, and appropriate information needs to be provided.**
- **There is a high need for nutrition knowledge, and IT-based educational methods are very effective. Token economy (gift of coins) proved to be effective, but the effect on behavior change (dietary diversity) needs to be further verified.**
- **Since motivation of participants has a significant impact on increasing participation rates, it is desirable to provide information that addresses the issues of participants and to provide interactive responses to each individual participant.**
 - **In one ongoing project (CO2 reduction), information is provided to participants via SNS in addition to the application, and we believe this method will be effective in the nutrition improvement project.**

Thank you

