
Research, Development and Evaluation Office
International Cooperation and Development Fund (TaiwanICDF)

Yan-Tzong Cheng, Yun-Ching Tseng

Feb 19, 2019
Outline

01 Introduction
The principle of project evaluation and international trends, diet and health in the Pacific Islands, project background and theory of change

02 Methods
Study design and data collection, measurement variable, data analysis

03 Results
Demographic information, analysis of vegetable and fruit intake, comparison between participants and non-participants, intervention effectiveness of the projects, project performance

04 Discussion
Measurement of the intervention effectiveness, Knowledge, Attitude and Practices (KAP) model

05 Conclusion
The project is in line with the theory of change, lessons learned, future direction

Partnerships for Progress and Sustainable Development
Introduction

The principle of project evaluation and international trends, diet and health in the Pacific Islands, project background and theory of change
The principle of project evaluation

- The main purposes of evaluation are to improve future aid policy, programs and projects through feedback of lessons learned, and to provide a basis for accountability, including the provision of information to the public.

(OECD, 1991, 1992)
The principle of project evaluation

Purposes of project evaluation

- Accountability
- Strategic management, operational management, policy-making or influencing
- Knowledge generation, empowerment of stakeholders
- Development of learning organizations and enhancement of practical wisdom and good practice judgement
International trends of project evaluation

- For a government development agency, project supervision, evaluation and audit can be used to manage a project and inspect its outcome from different angles, and to strengthen the effectiveness of aid work.
International trends of project evaluation

• TaiwanICDF refers to the project evaluation approaches of these international development agencies, focusing on projects that have been completed in the last two to five years, to conduct ex-post evaluation and verify aid results.
International trends of project evaluation

- TaiwanICDF follows the standard of the OECD to set up the assessment criteria (relevance, effectiveness, efficiency, and sustainability (5-Point Scale)) for project evaluation work.
- From 2011 to 2018, the TaiwanICDF conducted 17 ex-post evaluation reports among 16 countries.
Diet and health in the Pacific Islands

- Traditional meals in the Pacific Island countries typically consist of local starchy crops such as taro, pandanus and breadfruit.
- Vegetables and fruits are not part of the traditional meals, and the diet in these islands has gradually shifted due to environmental and social changes.

(Lai, 2014)
Diet and health in the Pacific Islands

- 90 percent of the consumed food in the Marshall Islands is imported.
- The mean number of combined servings of vegetables and fruits consumed per day was 1.9 in the Marshall Islands.
- The percentage who consumed less than five combined servings of vegetables and fruits per day was 91.0.

( WHO, 2007 )
Project background and theory of change

Knowledge, Attitude and Practices (KAP) model

Project Name: Horticulture Project in the Marshall Islands
Project Period: 2011/01/01-2014/12/31

- Offering resources
- Capacity building
- Vegetable and fruit promotion

Output → Outcome → Impact

Fruit and vegetable productivity increases → Intake of vegetables and fruits increases → Risk of diet-related health problems is lowered
# Project background and theory of change

<table>
<thead>
<tr>
<th>Main components</th>
<th>Project Content</th>
</tr>
</thead>
</table>
| Offering resources               | ● Offering plowing services  
                                 | ● Ensuring seed availability  
                                 | ● Ensuring fertilizer availability                                      |
| Capacity building                | ● Crop marketing skills training  
                                 | ● Farmers’ organization training                                      |
| Vegetable and fruit promotion    | ● Cooking demonstrations  
                                 | ● School gardens                                                      |
Methods

*Study design and data collection, measurement variable, data analysis*
Study design

- Cross-sectional study with a quasi-experimental design and mixed methods.
- Because of lack of baseline, we selected and assigned participants of the projects to the experimental group and non-participants to the control group.

![Diagram showing the study design with experimental group, participants, non-participants, and intake of vegetables and fruits.](image-url)
Data collection

- Collected data through a structured questionnaire.
- Dispatched a team to interview stakeholders of the projects.
- We interviewed the food preparer in the family to assess project effect as well as the family’s dietary pattern, with the food preparer usually providing more accurate informative answers.
## Measurement variable

### Demographic information
- Interviewees' gender, age, BMI, educational years, household size, household income, access to vegetables and fruits, daily spending on vegetables and fruits, etc.

### Intake of vegetables and fruits
- Interviewees' approach to obtaining vegetables and fruits, convenience of obtaining vegetables, convenience of obtaining fruits, frequency of preparing vegetables when cooking, and daily consumption of vegetables and fruits, etc.

### Knowledge of vegetables and fruits
- To measure the interviewees' knowledge of vegetables and fruits. The total score (full score is 5 points) of the questions is the measure variable of this topic.

### Attitude towards vegetables and fruits
- To measure the interviewees' attitude toward vegetables and fruits. The total score (full score is 15 points) of the questions is the measure variable of this topic.
Data analysis

- Analyses were carried out in IBM SPSS Statistics (version 22) and STATA (version 15). Data analyses include descriptive statistics and inferential statistics. For all statistical tests, the $\alpha$ level was set to 0.05.
Data analysis

- **Descriptive statistics**
  To understand the distribution of the interviewees’ demographic information.

- **Inferential statistics**
  - *T test* - to understand the difference between these two groups.
  - *Linear regression* - to investigate the association between "daily consumption of vegetables and fruit" and variables.
Results

Demographic information, analysis of vegetable and fruit intake, comparison between participants and non-participants, intervention effectiveness of the projects, project performance
Demographic information

- A total of 96 valid questionnaires were collected, including 36 participants and 60 non-participants.
Demographic information

Participants’ household

5.03
Household size
The average number of people in the interviewees’ households is 5.03 (SD=2.18)

US$147,68.46
Household income
The annual income of interviewees’ households on average is US$147,68.46 (SD=18,394.74)
Analysis of vegetable and fruit intake

5.15

Daily consumption of vegetables and fruits (unit)

Daily consumption of vegetables and fruits of interviewees’ households on average is 5.15 (SD=4.98)

75%

75% of project participants reported that they consume more vegetables and fruits after they joined the projects.

57%

Approach to obtaining vegetables and fruits

Buy

Most of the participants purchase vegetables and fruits (59.4 percent), while others grow their own produce (32.3 percent).

32%

Approach to obtaining vegetables and fruits

Grow by myself
Other findings

88% of participants are still growing crops in their home.

75% of participants’ household incomes come from selling vegetables and fruits.
Comparison between participants and non-participants

• Consumption of vegetables and fruits of the participants is **1.96** units higher than non-participants (P=0.062).

• There is no significant difference in the "score of knowledge of vegetables and fruits" and the "score of attitude towards vegetables and fruits” between participants with non-participants.
Comparison between participants and non-participants

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daily consumption of vegetables and fruits (unit)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants (N=36)</td>
<td>6.37</td>
<td>5.56</td>
<td>1.89*</td>
</tr>
<tr>
<td>Non-participants (N=60)</td>
<td>4.41</td>
<td>4.50</td>
<td></td>
</tr>
<tr>
<td><strong>The score of knowledge of vegetables and fruits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants (N=36)</td>
<td>1.89</td>
<td>1.14</td>
<td>1.44</td>
</tr>
<tr>
<td>Non-participants (N=60)</td>
<td>1.52</td>
<td>1.36</td>
<td></td>
</tr>
<tr>
<td><strong>The score of attitude towards vegetables and fruits</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants (N=33)</td>
<td>14.12</td>
<td>1.34</td>
<td>1.22</td>
</tr>
<tr>
<td>Non-participants (N=55)</td>
<td>13.71</td>
<td>1.64</td>
<td></td>
</tr>
</tbody>
</table>
Intervention effectiveness of the projects

- The result shows that "participate in the project" is really the influence factor in the simple regression model (p < .05)
- The score of knowledge of vegetables and fruits is the significant background factor in the regression model.
## Intervention effectiveness of the projects

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimates (t value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.314 (0.058)</td>
</tr>
<tr>
<td>Participate in the project</td>
<td><strong>5.180 (3.237</strong>)**</td>
</tr>
<tr>
<td>Sex</td>
<td>-0.768 (-0.501)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.002 (-0.038)</td>
</tr>
<tr>
<td>Educational years</td>
<td>-0.172 (-0.831)</td>
</tr>
<tr>
<td>Household income (log)</td>
<td>0.212 (1.462)</td>
</tr>
<tr>
<td>Access to vegetables and fruits (KM)</td>
<td>0.023 (0.664)</td>
</tr>
<tr>
<td>The score of knowledge of vegetables and fruits</td>
<td><strong>1.502 (3.460</strong>)**</td>
</tr>
<tr>
<td>The score of attitude towards vegetables and fruits</td>
<td>0.262 (0.847)</td>
</tr>
</tbody>
</table>

| R-Square                                           | 0.473                         |
| Adj R-Square                                       | 0.382                         |
| F value                                             | 5.166**                       |
Project performance

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Effectiveness</th>
<th>Efficiency</th>
<th>Sustainability</th>
<th>Overall performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.28</td>
<td>3.50</td>
<td>3.50</td>
<td>3.23</td>
<td>3.25</td>
</tr>
<tr>
<td>meets the standard of the criterion</td>
<td>meets the standard of the criterion</td>
<td>meets the standard of the criterion</td>
<td>meets the standard of the criterion</td>
<td>meets the standard of the criterion</td>
</tr>
</tbody>
</table>

Summary

- The design of the project meets the needs of the partner country.
- The project provided knowledge and skills in planting vegetables and fruits, as well as more opportunities to incorporate vegetables and fruits into their daily diet and to increase their income.
- Participants really do eat more vegetables and fruits, and most of the participants continue to plant vegetables and fruits.
Discussion

Measurement of the intervention effectiveness, Knowledge, Attitude and Practices (KAP) model
Measurement of the intervention effectiveness

- This study uses the evidence-based approach to prove the effects of the Taiwanese aid project, taking the project as an intervention and measuring the intervention effect, especially at the impact level.
Knowledge, Attitude and Practices (KAP) model

- To compare with the data from WHO, the results are almost the same. It shows that changing people’s behavior is difficult.
- According to field interviews, some people shared their knowledge and attitudes on health education through word-of-mouth, which has to do with the sharing culture in the Pacific Island countries.
Conclusion

The project is in line with the theory of change, lessons learned, future direction
The project is in line with the theory of change and has effects on dietary behavior associated with fruit and vegetable intake.

- The project assisted the participants to improve their dietary behavior through the three major components of the project: provision of resources, capacity building and vegetable and fruit promotion.
- The project assisted the participants to increase their income.
- The participants have more access to vegetables and fruits, which also makes them more willing to accept the produce.
Lessons learned

The results of the evaluation indicate that a single-oriented approach has effect in improving the daily consumption of vegetables and fruits, but the difference is not significant.

- The low intake of vegetables and fruits is still a very important issue for Marshall Islands.
- The follow-up on the issues of non-communicable diseases and obesity.
- Projects in the future could introduce multiple planting methods (e.g. planting boxes, vertical planting) to expand the scale of beneficiaries and promote the projects to specific groups/units (e.g. schools and urban communities).
- The particularity of young women in preparing food in their families should be been considered for future projects.
Future direction of evaluation

Not only obtain valuable experience but also share lessons learned to the international society

- In terms of ex-post evaluation, research methods should be strengthened to confirm the effect of project intervention
- In terms of the TaiwanICDF, the implemented projects should have baseline indicators.
- In terms of partner countries, the results could serve as reference for future projects.
A Better World,
A Brighter Future
Introduction of TaiwanICDF

- Capacity Building
- Responding to Partners’ Needs
- Drawing on Taiwan’s Comparative Advantages
- Strengthening Cooperative Partnerships
- Integrating Public and Private Sector Resources
- Human Capital Development

Partnerships for Progress and Sustainable Development
Introduction of TaiwanICDF

Operational Priorities

Agriculture

Environment

Public Health & Medicine

Education

ICT

Partnerships for Progress and Sustainable Development
Introduction of TaiwanICDF

- 84 ongoing projects in 38 countries
- 23 technical missions with 235 professionals in the field

- Europe & Western Asia
- Africa
- Asia & Pacific
- Caribbean
- Latin America
Introduction of TaiwanICDF
Introduction of TaiwanICDF

Research, Development and Evaluation Office

- International cooperation and development strategies
- Operational planning, coordination and integration
- Post-evaluation of the projects
## Strategy towards Agenda 2030

<table>
<thead>
<tr>
<th>Target</th>
<th>Organizational Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure Food Security</td>
<td>Number of people who have increased daily intake of fruit and vegetable</td>
</tr>
<tr>
<td>Strengthen Health Care System</td>
<td>Number of medical personnel provided with advanced training</td>
</tr>
<tr>
<td>Build Human Capital</td>
<td>Number of scholarship provided to partner countries to study in Taiwan</td>
</tr>
<tr>
<td>Promote Environmental Sustainability</td>
<td>Number of projects related to sustainable production and consumption and environmental friendly technology</td>
</tr>
<tr>
<td>Enhance resilience of communities affected by disasters</td>
<td>Number of people who have enhanced resilience through humanitarian projects</td>
</tr>
</tbody>
</table>