



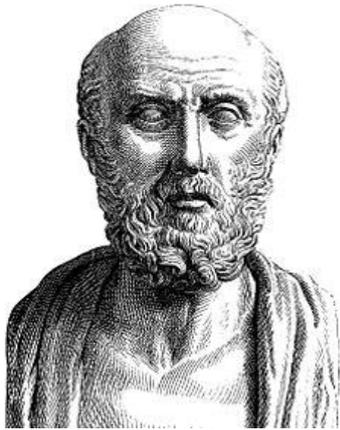
# THE SELF-HEALING POWER

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A Social Return on Investment Study of  
**YANG SHENG FOUNDATION'S**  
Self-Healing Enhancement Program for Older Adults



By Prof. Chien-wen Shen 沈建文



*Hippocrates*

*“Vis medicatrix naturae (the healing power of nature)”.*

Hippocrates believes an organism has the capacity to rebalance itself and counteract illness. “The healing power of nature” is our own best physician.

So does the Yang Sheng Foundation.

## **PREFACE**

SROI evaluation is one of the most rigorous and comprehensive research we have experienced. But it is indeed worthwhile. For a non-profit organization, especially in the newly developing aging field, it is valuable and meaningful to learn from the feedbacks from key stakeholders. To understand if their positive feedbacks meet the foundation's mission or any negative feedbacks that are allowing room for future improvement.

During the process, we have learned the monitoring mechanism to evaluate social impacts from defining key stakeholders to design questionnaire, interview, and value mapping. In addition, this gave us the opportunity to review and plan Yang Sheng Foundation's sustainability in the long term from cost and benefit perspective.

After analysis, we are so grateful to find out SEP have accomplished more impacts than we thought. It is such an inspiring encouragement that augments our motivation to scale up the program to more areas of Taiwan. And it provides a strong stake for us to advocate for policy change on the preventative side of healthy ageing to enhance quality of life for older adults.

Last but not least, though the assurance process is completed, it is just a new beginning. There is more work to roll out. Thanks to all the hard work from key stakeholders, their open-minded, and positive attitude toward the long process in patience make the invaluable impacts valuable. Thanks to the SROI execution team, especially Dr. Shen, who set up such a solid and professional example to make it happen. As the whole world is aging rapidly, sincerely hope everyone could enjoy the longevity and age gracefully with dignity.

**Huaii Hsu**

**CEO of the Yang Sheng Foundation**

## **ACKNOWLEDGEMENT**

I would like to show my sincere gratitude to all the stakeholders who have participated in this study. The changes that had happened in their lives and thus shared with us not only help me establish this impact study but also provided me with the confidence that active ageing is achievable.

I am deeply grateful to the CEO of the Yang Sheng Foundation, Huaii Hsu, and the core members of the program, (Abby Lee and Shu-wei Lin), who have given me full trust, unconditional support, and leniency in timing in completing this study. I cannot thank them enough so I sincerely wish this report can add value to the service delivery of the foundation.

A huge thank you to the site teachers at the YS 60 Centers as they are the main contributors in the data collection process. I would also like to thank my graduate students who supported me with interviewing the stakeholders and data consolidation. Special thanks to my wife Jan Lin for her unflinching support for this SROI project.

Together with everyone who participated in this study, we hope to contribute to a better ageing environment for older adults on this island.

Shieh-shieh/Thank you

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## EXECUTIVE SUMMARY

This report details the Social Return on Investment (SROI) evaluation analysis conducted on the Self-Healing Enhancement Program (the program) courses delivered by Yang Sheng Foundation (YSF) for older adults who are above the age of 60. The results demonstrate that significant social value is created through the course, with SROI result of \$1: \$11.49 meaning that for every \$1 invested, \$11.49 of social value is created.

Fundamental to the success of the program is the holistic health self-management approaches designed in the 3-stage program course. The program was developed by a group of experts from various professional fields who have an in-depth understanding of local older adult's learning behaviors. On top of that, they have adopted practices from USA and Japan's community health promotion programs and continuously incorporated latest research in related area. The analysis identified 4 stakeholder groups that are most affected by the program and recorded and valued major changes they experienced. The stakeholder groups and changes include:

- Older adult program attendees: the changes they experience are significant and holistic, comprising physical, mental, lifestyle and interpersonal relationship, which coincide with the diverse course content aiming to promote human body's "self-healing" function. Many older adults reported they improved diet quality, increased physical activity, improved sleep quality, increased self-confidence, and improved capability to maintain relationship with others. Overall, older adults reported being happier with a sense of well-being after attending the course. All the attendees were highly positive towards the changes, there is no negative outcome mentioned.
- Seed teachers: this group of stakeholders also experienced significant positive changes. With the mindset of setting good examples for their students, they practiced what they taught and as a result also experienced similar changes as program attendees' group, which are increased physical activity, improved diet quality, self-confidence and the capability of social skills and relationship management. The two unique changes from this group are that they obtained a sense of self-accomplishment and increased involvement in learning or self-enhancement activities. They too, had not experienced negative outcomes.
- Program attendees' spouses: program attendees practiced what they learnt in the program, thus influenced their spouses. The main changes reported by this stakeholder group are improved diet quality and increased physical activity. Some of them also experienced mental health improvement with a sense of wellbeing due to their spouses' changes. No negative changes were reported as well.
- Site teachers: they are full-time staffs at YSF so facilitating the program is part of their job. They also experienced changes of improved diet quality and increased physical activity. This is the only group that had mentioned one negative change, but not materially significant as

verified later.

Taiwan has become an aged society (proportion of people over the age of 65 is greater than 14%) since 2018 and will reach super aged society (proportion greater than 20%) in 2026. Amongst the older population, 16.7% needs long-term care and it will grow to 23.3% in 2026. In face of the changing population profile, government's related health and welfare policies and resources focus on chronic illness care. But most of the older population is in sub-health state. From root-cause standpoint, taking preventive measures on health management is equally important. The collective intelligence and effort from third sector will be critical to support older adults in maintaining quality of life that is built on independence, autonomy, and dignity.

YSF is the pioneer in the development and education of "self-healing power" concept, and actively promotes this integrated health self-management program. Since its inception in 2013, more than 170,000 people have attended it. It has received wide acclaims from attendants and government affiliations that they cooperated with. By embarking on the SROI evaluation, it will be the first time YSF takes a holistic and rigorous approach to measure its impact based on stakeholder-endorsed changes. YSF hopes to gain further insight into its impact scope and magnitude with a concrete value perspective, which will then facilitate its future decision making to creating more social value for older adults in Taiwan.

## Chapter 1: Introduction

### 1.1 The Ageing Background in Taiwan

According to the Ministry of the Interior [1], Taiwanese' average life expectancy is 80.7 years old. In 2018, Taiwan just reached as an aged society with older adults over 65 years old representing 14% of total population, which is around 3.3 million. Compared to other countries, it only took Taiwan 25 years from an ageing country to an aged country, which is a much faster transition than Germany's 40 years, the United Kingdom's 47 years, the United States' 72 years, and France's 127 years [2].

What is even surprising is that Taiwan is also considered as one of the fastest ageing countries in the world. It will change again from an aged county to a superaged country by 2026, with 20% of the total population above 65 years old while it is estimated to take 20 years for Europe and 50 years for United States [2]. Therefore, it is imperative for all the people in Taiwan to consider the impact of new demographic change.

### 1.2 The Social Problems Arose from Booming Ageing Population

The fast-ageing speed has caused new social problems arisen, while the efficacy of implementing older adults' related health and welfare policies has yet to prove adequate. The social problems arisen are:

1. Lack of awareness for retirement planning and continuous learning to progress into successful ageing

According to the Senior Citizen Education Policy White Paper published by the Ministry of Education [3], lifelong learning plays a critical role in active ageing. It facilitates older adults to progress into healthy ageing successfully. In 2017 Senior Citizen Condition Survey [4], 42.4% of the 55-64-year-old adults have never thought about planning for retirement life. Once they enter retirement, only 4.9% of the 65+ older adults had participated in any learning activity in the past one year.

2. Family caregivers early drop out of workforce yet with unbearable care responsibility

Although the average life expectancy has reached 80 years old in Taiwan, the disability rate for 65 and above is 13.4% [2] and the prevalence of older adults with dementia is 7.9% [5]. The unhealthy life expectancy is around 9.9 years and average caring time is 13 hours per day [6]. This directly impacted the so-called sandwich generation, who have the pressure to raise their own children, also need to bear the responsibility of taking care of their older parents. According to Commonwealth Magazine report [7], there are estimated 2.31 million people who are affected due to family care issue and 130,000 people quit their job due to family caring requirement.

3. Increasing financial burden on national health insurance fund with deficit started from 2017

According to 2017 Senior Citizen Condition Survey conducted by Ministry of Health and Welfare [4], 64.9% of the adults above 65-year-old have chronic diseases. General public's medical needs are covered by national health insurance program. The annual expenditure has grown 3.2 times in 22 years since its inception in 1966, and the annual growth rate in the past 3 years is around 5% [8]. It is imperative to change the medical model from treatment to prevention to reduce national treasury's financial burden.

#### 4. Slow growth and inadequate community services network cannot meet the market requirement

The average retirement age in Taiwan is 61.1 years old [9]. In other words, there are more than 20 years of life before reaching the average life expectancy. While the population above 60 years old today is around 4.8 million, there are only 2,800 community centers and hundreds of institutions, which are way below market requirements. Central Governments grants small funds focusing on limited services. Most community centers open 2-3 days a week due to limited resource and volunteers. The health promotion programs are not evidence based and more for recreational purpose. Although there are many enthusiastic volunteers, the limited resources confine the performance and effectiveness of the community centers. Therefore, the service scope is mostly to the same group of people over years.

### 1.3 The Strategic Imperative for Third Sectors' Involvement

The impacts of changing demographic profile spread across a wide range of areas, and the speed of development is beyond grasp. Nowadays, the new social, environmental, or human problems that arise cannot be resolved by government alone simply because the complexity of the issues, the resource limitation and inefficiency of bureaucratic system. Resolution will come with the collective effort from the third sectors.

Where to begin? The ageing issue not only appears in Taiwan, but all over the world. World Health Organization announced the World Report on Ageing and Health [10] in 2015. In the report, it mentioned healthy ageing is the process of developing and maintaining the functional ability required for the healthy life of the older adults. Research also shows that accumulated unhealthy lifestyle is the root cause for chronic diseases. The most update trend is health promotion and self-management model. Health promotion is, as stated in the 1986 World Health Organization (WHO) Ottawa Charter for Health Promotion [11], "the process of enabling people to increase control over, and to improve, their health. In other words, everyone has the capability and responsibility to empower themselves toward a healthy and well-being life".

However, it is not easy to change lifestyle. With the limited resources globally, no government could support social welfare freely forever for older adults and no family could sacrifice their own well-being to take care of their family forever. Everyone should review their lifestyle choices since early

age and make prevention before it is too late to regret. Thus, self-management is enormously important for today's society.

#### 1.4 Who are Yang Sheng Foundation?

Yang Sheng Foundation was established in 2012 in Taiwan. It is a non-profit organization aiming to enhance older adults' welfare and well-being in our fast-ageing society.

During the time YSF was established, Taiwan society was not ready for dementia and disability prevention concept. Most people considered it is their family members, doctors, and the government's responsibility to take care of them when in illness. With a long-term view on the impact brought by unhealthy ageing population, YSF is enthusiastic to address the future social problems by change public's mindset and behavior from health treatment to health prevention, mainly focusing on the lifestyle and habit adjustment to improve the functional abilities of older adults.

- Vision: Older adults age gracefully with independence, autonomy, and dignity to enjoy a good quality life of longevity
- Belief: "Self-healing power is the doctor within our bodies, it will support us achieving healthy ageing and reduce the risk of chronic illness"
- Mission: Educate the self-healing enhancement concept and promote its implementation
- Strategy: Conduct "self-healing enhancement" program in own facilities within the metropolitan areas, and train course instructors to spread into community levels nation-wide

There are currently five members in the board with 16 full-time employees of multi-facet professional background, including registered nurses, social workers, researchers, dietitian, occupational therapist, adult education, psychology, linguistics, communication, aging service management, anthropology, health promotion, performance art and accounting.

YSF is the first organization in Taiwan with integrated and structured health promotion program tailored to older adults. It is also one of the members to draft Taiwan Aged Society White Paper, incorporating self-healing concept under the chapter for health prevention. YSF also works with Taiwan Ministry of Health and Welfare on related plans and programs. It won the prize as the best organization for creation and was elected as the member for Taiwan Ministry of Health and Welfare Older Adults Welfare Promotion Team.

## 1.5 The Self-Healing Enhancement Program (SEP)

### 1.5.1 Purpose of SEP

To shift the gear of current medical model from cure to care, YSF believes that older adults need to adjust their lifestyle to enhance their own self-healing capability. This way, they can manage their health condition better, live with good quality of life, reduce family care burden, and furthermore lessen society cost.

### 1.5.2 How the program was developed

YSF collected latest international research and referenced practices from USA, Japan, and Europe to create the Taiwanese version of integrated health self-management model. The SEP was developed by incorporating the latest research findings on integrated health and well-being prevention domains, including physical activity, nutrition, oral health, cognitive stimulation, social interaction, water drinking, sleep pattern, and mindfulness. It is summarized into a 3+1 illustration in the following figure.



**Figure 1. Illustration of SEP**

The program contains 5 characteristics: 1) stimulate social interaction; 2) fun and easy to do in the daily life; 3) increase self-efficacy; 4) create a learning environment to motivate older adults for behavior changes; 5) develop a progressive and structured design program with multi-domains.

### 1.5.3 The 3-stage program

The SEP program is divided into 3 stages. Each stage is an 8-week long, 2 hours per week. The focuses for each stage are:

Stage 1 Course: Beginner level. The aim of this stage is to flip traditional ageing perception, enhance health literacy, understand self-healing and 3+1 integrated action. Program content covers physical exercise, diet education, oral health education, mindfulness concept and interpersonal relationship activities (See Figure 2).



Figure 2. Activities of Stage 1

Stage 2 Course: Intermediate level. The aim of this stage is to facilitate the implementation of 3+1 integrated action into daily life. An instructional guidebook and 8 weeks' workbooks with daily practices are distributed to build up health self-management habits progressively (See Figure 3).



Figure 3. Activities of Stage 2 Course

Stage 3 Course: Advanced level. The aim of this stage is to introduce mindfulness concept, increase self-awareness and learn stress management skills. Program content covers body scan, breathing techniques, meditation, body stretch and mindfulness eating. In-class practice and group discussion are methods adopted (See Figure 4).



Figure 4. Activities of Stage 3 Course

#### 1.5.4 Program coverage

SEP are conducted in different channels, which includes (see Figure 5):

1. YS 60 Centers: there are two currently located in greater Taipei area, directly managed by YSF.
2. Train the Trainer Workshop: in view of the strategic importance of expanding program reach island wide, YSF invested behind training seed teachers. After being certified, seed teachers go back to their own communities and teach SEP at community centers. Community centers are running by counties, and there's manpower limitation on YSF side, therefore YSF does not supervise the SEP courses taught at the community levels.
3. 2.5 hours Interactive Workshop: targeting towards public for awareness building
4. Community centers: YSF occasionally received invitation from community centers to conduct SEP there.
5. Co-op NGO: YSF occasionally received invitation from other NGO to conduct SEP to their staffs.

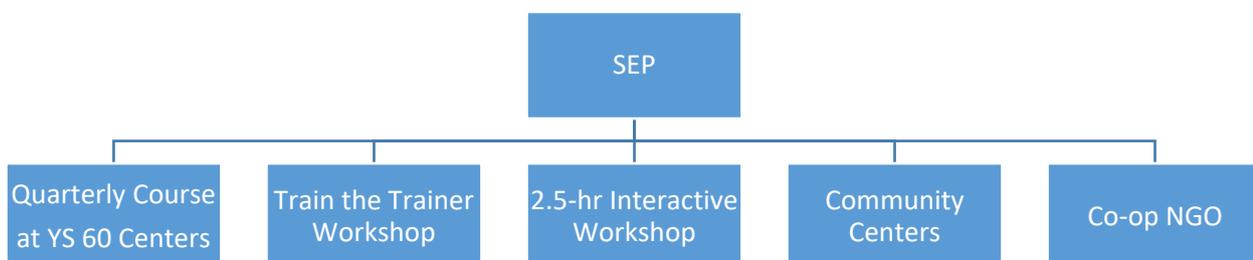


Figure 5. SEP Channels

## Chapter 2: SROI Methodology

### 2.1 What is SROI?

When organizations aim at addressing particular social issues, the actions taken create changes in beneficiary's lives. SROI is a framework used to measure the impact of an intervention on the people, communities, and environments from the perspective of those who experience or contribute to it. The changes are always of value to people. Therefore, SROI takes an accounting-based principle and applies financial proxies to non-market outcomes (i.e., changes experienced) so to derive the impact with a monetary value. Then it considers all the resources invested behind the intervention and compared the impact value against cost to derive a "cost to benefit" ratio.

The purpose of SROI is not merely about arriving at a financial ratio to measure the success of the activities. The SROI calculation process provides insight into how an organization fulfills its purposes with strategic implications because:

- Stakeholders' involvement is key, which means the SROI calculation holds organizations accountable to their stakeholders rather than program outputs for internal review
- It provides a detailed narrative that explains how changes are created, as telling a story, and the relative importance of each change to stakeholder groups
- It takes a holistic view on changes so positive and negative, intended, and unintended are all captured and counted in the value calculation
- Organizations can evaluate the impacts created and judge whether to change, stop or scale up their activities to maximize their impacts. It helps organizations in decision making and resource allocation in better achieving its goals

### 2.2 Why an SROI Study?

Since program inception, there has been more than 170,000 attendees attended the program. According to YSF, every quarter majority of the new attendees registered because of their friends' and families' word-of-mouth recommendation. YSF conducted a program assessment in 2017 [12] by collecting physical health related data, including blood pressure, cholesterol level, cardiovascular and body strength abilities etc. from 159 program attendees. It also developed a "self-healing enhancement" scale in cooperation with academic fields. However, there has yet been a study done on the overall effectiveness of SEP from a socio-economic perspective using a rigorous and disciplined approach. By undertaking this SROI study, it wishes to examine the impact of the SEP from a stakeholder-based perspective to identify direction for future improvement.

The results of the study will be used in two areas:

- Internal: self-evaluation, gain further insights into how SEP has delivered its mission and enhanced older adults' quality of life. At the same time, to identify areas for improvement
- External: support the share and spread of SEP concept, in specific:
  - Government: to facilitate the incorporation of SEP program into community services and influence related policy change
  - Academic fields: to cooperate further on SEP program refinement
  - Other NGO and communities: to spread the awareness and adoption of SEP for behavior change to gain better quality of life

### 2.3 Our Approach

There are two types of SROI analysis: a forecast SROI predicts the impact of an activity and an evaluative SROI measures the changes that it created. For YSF, this is an evaluative SROI study. A mixture of qualitative and quantitative research methodologies was adopted in this study:

- Qualitative workshop and one-on-one interview. We held workshops with full members from YSF to gauge the needs for an SROI analysis and to determine scope of the study. We also conducted one-on-one interviews with selected number of stakeholders to explore all the changes that had occurred, and the causal relationships between one and another. It is also deployed to verify outcomes and financial proxies at later stage.
- Quantitative questionnaire distributed to incumbent stakeholders with the attempt to measure and account for changes, and other factors contributing or discounting them.

The investigation team follows the 2015 Guidance on SROI calculations, in specific the Seven Principles and Six Stages of SROI study (See Figure 6):

## 7 Principles of SROI



## 6 Stages SROI Study

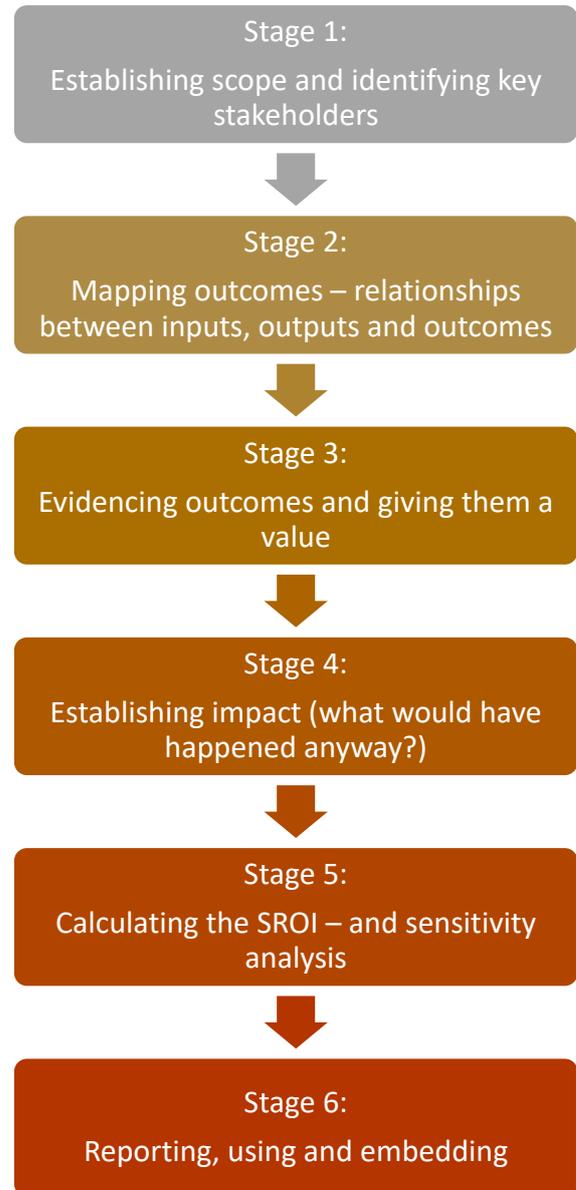


Figure 6. The SROI Approach of this Study

## Chapter 3: Stage 1 – Establishing Scope and Identifying Key Stakeholders

In this chapter, we explain how we identified stakeholders and how they were involved into the study. Stakeholders are people who either have been affected by or have contributed to the activity. Involving the stakeholders is the fundamental requirement of SROI as the methodology is based on measuring the changes experienced by these people to establish activity impact. By involving stakeholders throughout the process, we can identify outcomes, establish theory of change or chain of events, understand the level and relative importance of each outcome, calculate the financial values of each outcome, identify other factors contributing to the outcomes, and verify results. In the following sections, we discuss how we established the scope, identified stakeholders, and engaged with stakeholders.

### 3.1 Establishing Scope

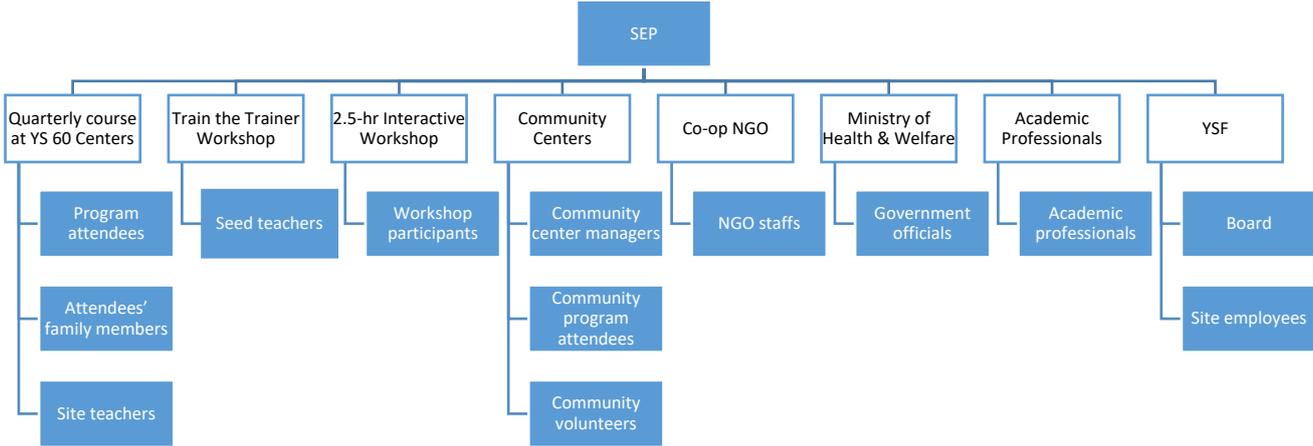
To determine the scope of the study, we conducted individual pre-meeting and a workshop with all full-time employees from YSF. In the workshop, we introduce SROI concept and gauge their expectation for a SROI study. According to YSF, their objectives are to change public's mindset and behavior from health treatment to health prevention. They aim to advocate lifestyle and habit adjustment for the elderly to improve their functional abilities. To shift the gear of current medical model from cure to care, Yang Sheng Foundation believes that older adults need to adjust their lifestyle to enhance their own self-healing capability. This way, they can manage their health condition better, live with good quality of life and lessen society cost. They would like to use the results of SROI to understand how to allocate resources efficiently? Which outcomes should be further improved and how to improve such outcomes?

The main activity of YSF is SEP program and its major delivery channels are its two YS 60 Centers and the Train the Trainer workshops (see Figure 5), which take up more than two third of the organization resources. Based on an initial assessment taken place during the workshop, as well as considering this is the first SROI study, YSF wishes to focus the study scope on the SEP distributed through two YS 60 Centers and the Train the Trainer workshops. Therefore, stakeholders related to SEP were involved for further engagement. This report adopts SROI methodology to evaluate the social value of the SEP from August 1st, 2018 to July 31st, 2019, because the SEP runs by seasonal turns and August is usually the beginning of summer session.

### 3.2 Identification of Stakeholders

During the workshop with all full-time employees from YSF, we mapped out 14 potential stakeholder groups (see Figure 7) based on the scope defined in Section 3.1, which include program attendees (elderly people over 60), attendees' family members, site teachers, seed teachers, workshop participants, community center managers, community program attendees, community

volunteers, NGO staffs, government officials, academic professionals, board members of YSF, site employees of YSF, and YSF. They are involved with the SEP through different channels including YS 60 centers, train the trainer workshops, 2.5-hr interactive workshops, community centers, co-op NGOs, Ministry of Health and Welfare, and YSF. We asked YSF “Who do you think will be changed or affected by SEP?” and followed with a closed question “Are there any omissions in the list of stakeholders?”



**Figure 7. Potential Stakeholder Groups**

Based on the workshop discussion, the listed stakeholders can be further classified into direct stakeholders and indirect stakeholders in terms of their roles in SEP. Direct stakeholders refer to individuals and organizations that SEP directly affected and are affected, including program attendees, site teachers, seed teachers, workshop participants, community program attendees, board members of YSF, site employees of YSF, and YSF. Indirect stakeholders refer to the ones who were affected indirectly by the SEP, including attendees’ family members, community center managers, community volunteers, NGO staffs, government officials, and academic professionals.

We also followed the guidelines of AA1000 Stakeholders Engagement Standards (SES) 2015 to ensure the principles of stakeholder participation were fully applied throughout the process of stakeholder identification. The SES principles include dependency, responsibility, tension, influence, and diverse perspectives. Table 1 summarizes the stakeholders related to each principle. For example, dependency principle helped us to identify stakeholders including program attendees, attendees’ family members, site teachers, seed teachers, workshop participants, community center managers, community program attendees, government officials, board members of YSF, and site employees of YSF

**Table 1. SEP Stakeholder Identification by AA1000 SES**

<b>Principles</b>	<b>Description</b>	<b>Identified Stakeholders</b>
Dependency	Groups or individuals who are directly or indirectly dependent on the organization's activities, resources, products, or services, or on whom the organization is dependent to operate.	<ul style="list-style-type: none"> <li>- program attendees</li> <li>- attendees' family members</li> <li>- site teachers</li> <li>- seed teachers</li> <li>- workshop participants</li> <li>- community center managers</li> <li>- community program attendees</li> <li>- government officials</li> <li>- board members of YSF</li> <li>- site employees of YSF</li> <li>- YSF</li> </ul>
Responsibility	Groups or individuals to whom the organization has, or in the future may have legal, commercial, or ethical responsibilities	<ul style="list-style-type: none"> <li>- government officials</li> <li>- board members of YSF</li> <li>- site employees of YSF</li> <li>- YSF</li> </ul>
Tension	Groups or individuals who need immediate attention from the organization about financial, economic, social, or environmental issues.	
Influence	Groups or individuals who can have an impact on the organization's or a stakeholder's strategic or operational decision-making	<ul style="list-style-type: none"> <li>- government officials</li> <li>- board members of YSF</li> <li>- site employees of YSF</li> <li>- YSF</li> </ul>
Diverse perspectives	Other individuals and groups who may be influenced due to other comprehensive factors.	<ul style="list-style-type: none"> <li>- community volunteers</li> <li>- NGO staffs</li> <li>- academic professionals</li> </ul>

We further evaluate whether to include or exclude stakeholders through face-to-face or phone interviews with the YSF and stakeholders. Table 2 summarizes the results of inclusion and exclusion assessment of SEP stakeholders. We investigated the possible subgroups, role type, and the rationale to include or exclude for each stakeholder group. Based on our investigation, we identified

4 stakeholder groups for SEP, which are program attendees, attendees’ family members, seed teachers, site teachers, and the YSF.

**Table 2. Inclusion and Exclusion Assessment of SEP Stakeholders**

Stakeholder Groups	Possible Subgroups	Role Type	Included or Excluded	Rationale
Program attendees	1 <sup>st</sup> stage attendees	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Beneficiary</li> <li>- Resource user</li> </ul>	Included	Program attendees have deep involvement with SEP and are the intended target to be influenced. They reported significant changes experienced.
	2 <sup>nd</sup> stage attendees			
	3 <sup>rd</sup> stage attendees			
Attendees’ family members	Spouses	- Indirect stakeholder	Included	50% that we contacted reported positive changes experienced because of attendees’ changes caused by the SEP
	Children		Excluded	All those that we contacted did not live with their parents, so no changes experienced.
Seed teachers	Not applicable	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Beneficiary</li> <li>- Resource user</li> </ul>	Included	Seed teachers have deep involvement with SEP, and they reported significant changes experienced.
Site teachers	Not applicable	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Resource provider</li> </ul>	Included	Site teachers have deep involvement with SEP and experienced significant changes.
2.5-hr interactive workshop attendants	Not applicable	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Beneficiary</li> <li>- Resource user</li> </ul>	Excluded	Not within study scope. Only awareness building workshop toward public therefore not likely to generate significant behavioral changes. Besides, YSF does not capture personal data so they cannot be reached.
Community center managers	Not applicable	- Indirect stakeholder	Excluded	Not within study scope. According to YSF, the community center managers hired YSF to conduct SEP but they didn’t participate in the program.

Community center program attendees	Not applicable	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Beneficiary</li> <li>- Resource user</li> </ul>	Excluded	Not within study scope. Only awareness building workshop toward public therefore not likely to generate significant behavioral changes. Besides, YSF does not capture personal data so they cannot be reached.
Community center volunteers	Not applicable	<ul style="list-style-type: none"> <li>- Indirect stakeholder</li> </ul>	Excluded	Not within study scope. They only help the administrative jobs of the workshops.
Co-op NPO	Not applicable	<ul style="list-style-type: none"> <li>- Indirect stakeholder</li> </ul>	Excluded	Not within study scope. According to YSF, co-op NGO only hired them to conduct the SEP and there's limited connection afterwards.
Ministry of Health & Welfare officials	Not applicable	<ul style="list-style-type: none"> <li>- Indirect stakeholder</li> </ul>	Excluded	Not within study scope. According to YSF, currently government officials engage YSF in policy making discussion and they did not participate in the program.
Academic professionals	Not applicable	<ul style="list-style-type: none"> <li>- Indirect stakeholder</li> </ul>	Excluded	Not within study scope. According to YSF, they engaged academic professionals on self-healing theoretical and research related development. They did not participate in the program.
YSF board of directors	Not applicable	<ul style="list-style-type: none"> <li>- Direct stakeholder</li> <li>- Resource provider</li> </ul>	Excluded	According to YSF, the board of directors provide funding, guidance support and consultancy, but they are not involved in operation nor participated in the program. Therefore, can be excluded from the study scope.

YSF's site employees	Not applicable	- Direct stakeholder - Resource provider	Excluded	Based on interview, site employees perform administrative work and relationship management, but are not deeply involved in the program.
YSF	Not applicable	- Direct stakeholder - Resource provider	Included	They are the major input provider of SEP.

Recognizing that everyone is different, certain characteristics may influence the changes experienced. As a result, a stakeholder group may consist of subgroups, causing different set of changes emerged. It is important to identify the potential existence of subgroup during initial interview so we can better manage and be informed about the decision making. Prior to the initial interview, we did literature review [13] and assumed several factors may contribute to the presence of subgroup, which are age, gender and stage of course attended. Particularly, age and gender are two factors that affect physical and mental capabilities, and thus affects older adults' ageing life conditions. However, during the interview almost all the interviewees mentioned similar changes. Although the level of articulation and sensitivity in self-observation are somewhat different due to age and gender, we did not identify uniquely different outcomes resulted due to these factors.

As for the stage of course attended, 1<sup>st</sup> and 2<sup>nd</sup> stage course contents are similar with the later one focuses on the health self-management behavior building. Therefore, same changes were recorded. The 3<sup>rd</sup> stage course focuses on mindfulness concept, increasing self-awareness and learning stress management skills. We found that though there are specific changes mentioned by 3<sup>rd</sup> stage attendees, when we got to the end of the chain, it is the same as what is experienced by 1<sup>st</sup> and 2<sup>nd</sup> stage program attendees. For example, by practicing meditation and breathing techniques learnt in 3<sup>rd</sup> stage course, some attendees reported achieving emotional calmness and mood enhancement, and thus result in improvement of mental health and a sense of well-being. The 1<sup>st</sup> and 2<sup>nd</sup> stage program attendees also reported increasing emotional calmness and positive mood due to learning to think more positively. Since at the end of the chain these changes lead to the same outcome, we do not find the existence of subgroups for program attendees.

Regarding the stakeholder group of attendees' family members, YSF classified into two subgroups, attendee's spouse, and children. We conducted phone interviews with these subgroups and identified attendee's spouse as the only group who was affected by the SEP, because 50% of the contacted spouse reported positive changes by attendees' changes caused by SEP and almost all of them did not live with their children. For those children who live with the program attendees, none of them experienced changes caused by the changes happened to their parents by SEP. Hence, program attendees, attendees' spouse, seed teachers, site teachers, and the YSF were identified as the stakeholders of the SEP.

### 3.3 Stakeholder Engagement

In this study, we involved stakeholders with three approaches, including interview, questionnaire, and verifying outcomes and report. These engagement approaches can help us to reduce the risk of sampling errors caused by the sampling process and enhance the reliability and validity of the SROI report. We discuss the details of these approaches in the following sections.

#### 3.3.1 Interview

Stakeholders were interviewed to express the changes they have experienced under our guidance. Exclusion or inclusion of stakeholders was determined by material changes to have happened because of the intervention of SEP. In Stage 1 of our SROI analysis, we conducted one-on-one interview with potential stakeholders to identify changes they experienced and determine which to include into or exclude from the analysis. In addition, Table 3 summarizes the number of people we engaged in Stage 2 of the SROI analysis. At least 3% of each stakeholder group were randomly chosen to ensure the representation of the corresponding populations. A total of 114 people were interviewed. We adopted a semi-structured interview approach to gauge response on the positive and negative changes they experienced and obtained description on the causal relationship of the changes happened (refer to Appendix 1 for discussion guide). For the SEP program attendees, we interviewed respondents from each of the 3 stage courses. For attendees' family members, we interviewed their spouses and children. This was done to check for potential subgroups. Upon completion of this process, we identified 4 stakeholder groups for this study.

**Table 3. Stakeholder Engagement in Stage 2**

Stakeholder Groups	Number of People Engaged	Interview Methods
Program attendees	1 <sup>st</sup> stage course: 30 2 <sup>nd</sup> stage course: 17 3 <sup>rd</sup> stage course: 16	Mostly face-to-face, few phone interview
Attendees' family members	24	Phone interview
Seed teachers	21	Face-to-face interview
Site teachers	6	Face-to-face interview

#### 3.3.2 Questionnaire

Based on the qualitative interview, we identified changes from each stakeholder group, established chain of events and respective indicators for the outcomes. Then we were able to design questionnaires to evidence the outcomes, assess the magnitude of impact and examine the materiality. We also collected data on other influencing factors: deadweight, attribution, displacement, drop-off, and duration (refer to Appendix 2 for questionnaires). Before rolling out the quantitative survey, we discussed the draft questionnaire with core members from YSF to ensure

suitability of assessment. Then, we conducted a small-scale pre-test to program attendees in selected classes. We sought site teachers' help to report back program attendees' feedback. According to the tested attendees' feedback, we simplified the questionnaire and adopted 5-point Likert scale to ensure ease of comprehension. Other stakeholder groups' questionnaires were revised accordingly for standardization purpose. We received YSF's full support to formally roll out the questionnaires to all the program attendees (922 persons) in class. They were asked whether they were willing to answer the questionnaire and 319 of them answered yes. Among attendees who have spouses (650 persons), we also asked attendees whether their spouses were willing to take survey and 150 of them answered yes. Meanwhile, we distributed questionnaire to all the seed teachers and site teachers, because they all agreed to take the survey. While paper questionnaires were distributed to program attendees and site teachers, electronic surveys were distributed to attendees' spouses and seed teachers, because they were asked to leave their email contacts when they agreed to take the survey. Table 4 summarizes quantitative survey respondents' composition. Accordingly, the number of questionnaires issued for program attendees, attendees' spouses, seed teachers, and site teachers are 319, 150, 113, and 9, respectively. The response rates for each stakeholder group are 100%, 25.3%, 38.1%, and 100%, respectively.

**Table 4. Summary of Questionnaires Distributed and Received**

Stakeholder Groups	Number of People in Each Stakeholder group	Number of Questionnaires Issued	Number of Questionnaires Received
Program attendees	922	319	319
Attendees' spouses	650	150	38
Seed teachers	113	113	43
Site teachers	9	9	9

### 3.3.3 Verifying Outcomes and Report

The calculation results were systematically compiled and presented to each stakeholder group. Verification is to mitigate the possible discrepancy between our analysis and the true experiences of stakeholders. The results would be amended in response to any concerns or contradictions raised by stakeholders during this verification stage. Finally, the report was verified with representatives of each stakeholder groups to finalize the writing.

After analyzing survey data, we conducted another round of one-on-one interview with randomly selected respondents from each stakeholder group. We verified survey results, including outcomes, indicators, and other influencing factors. We also discussed and confirmed financial proxies. Financial proxy is a hypothetical concept and not easily understood by our stakeholders. Therefore, we needed one-on-one interview providing explanation to ensure full comprehension and data accuracy.

## Chapter 4: Stage 2 – Mapping Inputs, Outputs and Outcomes

In this chapter, we cover the second stage of SROI analysis by outlining the inputs that YSF invested behind the SEP, the outputs resulted from it and the derived outcomes by stakeholder groups.

### 4.1 Inputs

Inputs are the resources required to deliver an activity, including both monetary and non-monetary. As previously stated, the scope of this study is the SEP conducted in the two YS 60 Centers and the Train the Trainer workshops for seed teachers. Therefore, we only counted the resources invested behind these two activities during the one-year study period. This data is provided by YSF staff who is responsible for implementing the project.

YSF is an independent foundation that does not rely on donation from external sources. The two YS 60 Centers are operated by full-time employees without volunteers involved. The inputs amount during the study period is NT\$6.7 million and expensed in three areas – site operation and maintenance (utilities, textbooks, course props, fitness equipment, stationery, etc.), Train the Trainer workshop implementation (training manuals, posters, signage, display racks, meals, transportation, etc.) and staffs’ salary (see Table 5). For stakeholders, besides from inputting time into the program, the only input is the NT\$100 cleaning fee paid by the program attendees annually. Accordingly, the total amount of input from program attendees is NT\$92,200. Seed teachers are the beneficiaries and hence there is no financial input from them. Meanwhile, site teachers received salary from YSF and hence we do not double count the financial inputs from them.

**Table 5. Summary of Inputs**

Stakeholder	Inputs	Use	Value (NT\$)
Program attendees	Monetary	Cleaning fee, NT\$100/year	92,200
	Time	Attended the program, practicing	0
Attendees’ spouses	Time	Not applicable	0
Seed teachers	Time	Attended the workshop, practicing and facilitating the course	0
Site teachers	Time	Job responsibility	0
YSF	Monetary	Site operation and maintenance	6,733,252
	Monetary	Training workshops delivery	
	Staffs	Salary	

## 4.2 Outputs

Outputs are a quantitative summary of an activity. Detailed outputs of SEP is summarized in Table 6. The outputs from program attendees are 612 classes with 922 people participated, which include 244 classes with 634 people participated in the 1st stage course, 200 classes with 494 people participated in the 2nd stage course, and 168 classes with 414 people participated in the 3rd stage course. While the outputs from seed teachers are 9 sessions with 113 certified teachers, the outputs from site teachers are 612 classes.

**Table 6. Summary of Outputs**

Stakeholder Group	Output Types	Outputs
Program attendees	SEP course	1st stage course: 244 classes with 634 people participated 2nd stage course: 200 classes with 494 people participated 3rd stage course: 168 classes with 414 people participated
Attendees' spouses	Indirect	650 people
Seed teachers	Training course	9 sessions with 113 certified seed teachers
Site teachers	SEP course	612 classes taught

## 4.3 Describe Outcomes

Outcomes are changes that stakeholders experienced due to an activity's intervention. Just because every stakeholder is different, outcomes can be positive or negative, intended or unintended, and sometime beyond thinking scope. That is the reason why we must involve stakeholders to establish a complete picture of an activity's impact. Meanwhile, change usually occurs as a result of other changes, and it continues on in a linear logical chain. By identifying the causal linkage between outcomes, we establish chain of events. For every stakeholder groups, we identify well-defined outcomes. They describe specific changes for stakeholders that provide best opportunity to increase or decrease value. A well-defined outcome will lead to better resource allocation decisions being made to maximize social value. For outcomes, there are five main types of outcomes: circumstance, behavior, capacity, awareness, and attitude. As we go along this analysis, we focused on the main outcomes created by SEP belong to the first two types – circumstance and behavior.

The outcomes and chain of events were established through the stakeholder engagement process described in Chapter 3. This process provides evidential support for outcomes that stakeholders have identified in the initial consultation and which are deemed material to the key stakeholders. Table 7 provides a summary of the outcomes and respective chain of events for each stakeholder group. All the chains of events are based on intensive engagement and interviews with stakeholders.

Program attendees and seed teachers are the two stakeholder groups that experienced the greatest number of significant outcomes. For program attendees, a wide range of positive outcomes were mentioned, and these directly reflected the intended objectives of SEP, i.e., to enhance older adults' intrinsic body function based on physical and mental health and interpersonal connection to achieve healthy ageing. For example, according to Table 7, a chain of events for program attendees starts from that "they learnt knowledge about 6 types of food categories and the importance of taking nutritionally balanced meal." Then "they started paying attention to what they eat every meal," which is followed by "they adjusted the variety and volume in-take, mainly on protein, vegetable, and fruits." At last, "they now take nutritionally balanced meal," which we call "improvement of diet quality," a well-defined outcome of this chain of events, because this outcome provides the best opportunity for SEP to increase value. Other well-defined outcomes for program attendees include physical activity, sleep quality, mental health with a sense of well-being, self-confidence, and capability of managing relationship with others. Outcomes of "diet quality", "physical activity", and "sleep quality" may be highly related, but they were derived from their own chain of events. Many studies have also measured these three outcomes individually. For example, a longitudinal study investigated the physical activity, dietary habits and sleep quality before and during COVID-19 lockdown in Spain [14]. Sleep quality and physical activity were measured for the elderly in Japan and USA [15][16]. A health intervention program also measured physical activity, diet quality, and eating behaviors [17]. Hence, "Improvement of diet quality", "Increase of physical activity", "Improvement of sleep quality", "Improvement of mental health and sense of well-being", "Increase of self-confidence", and "Improvement on the skills and strategy to maintain relationships" are the well-defined outcomes that we measured for program attendees. There is no negative outcome experienced by this stakeholder group.

As for the seed teachers, since many of them held the belief that they should set a good example to their students, they practiced what they taught. They also experienced similar changes as the program attendees including improvement of diet quality and self-confidence, and increased physical activity. They also gained a sense of self-accomplishment and increased involvement in learning and acquiring new skills. For example, after they "taught the course", "they found their students and family members became healthier due to their teaching." Then "(some) received recognition from students, and hence "they realized that they were doing something meaningful." At last, "they got a sense of self-accomplishment", which is a well-defined outcome: "Have a sense of self-accomplishment." Interview results indicate that no negative outcomes were experienced for seed teachers.

Whereas attendees' spouses, some of them remain working and some have their own areas of interests. Their involvement with SEP was passive, i.e., they ate meals prepared by wives and exercised with wives etc. As a result, they experienced fewer changes that include increase of physical activity, and improvement of diet quality, and mental health with a sense of well-being. Nevertheless, the magnitude of change reported were comparable to that of the program attendees. They also did not report any negative change.

Site teachers, since they are relatively young (mostly between 30-40 years old) so in good physical health condition. Besides, they remain in the workforce with frequent social interaction. As a result, they experienced fewer changes at lesser degree when compared with the other stakeholder groups. The changes they experienced include improvement of diet quality and increase of physical activity. A few of them also reported obtaining a sense of self-accomplishment and increased involvement in learning or self-enhancement activities. However not significant enough while we examined its materiality therefore were excluded. This is also the only stakeholder group that reported negative change during initial engagement, which is the stress and frustration caused by facilitating the course. In quantitative survey there is only one person (out of 9) agreed the occurrence of the change. The financial proxy also reported as \$0. Therefore, we regarded this as an insignificant change and excluded as well.

Table 7. Table of Outcomes and Chain of Events by Stakeholder Group

1. Stakeholder Group: Program Attendees

Inputs	Value of Inputs	Outputs	Chain of Events	Well-defined Outcomes
Money: NT\$100/yr & Time	NT\$92,200	Number of class: 612 (2-hr/class)  Number of participated persons: 922	Learnt knowledge about 6 types of food categories and the importance of taking nutritionally balanced meal → they started paying attention to what they eat every meal → they adjusted the variety and volume in-take, mainly on protein, vegetable, and fruits → they now take nutritionally balanced meal (diet quality)	Improvement of diet quality
			Learnt physical exercises suitable for older adults, like stretching, bending etc. → they started taking exercise regularly, or for those who had been exercising they increased time and variety of exercises (physical activity) → they felt improvement in stamina, muscle strength, body agility and flexibility	Increase of physical activity
			Learnt the importance of healthy lifestyle and diaphragmatic breathing techniques → they started going to bed early, or practiced breathing technique before going to bed → they experienced shorter sleep induction time, longer sleep duration, or less awakening during night → they slept better now (sleep quality)	Improvement of sleep quality
			Learnt new knowledge and met new people > they enriched life scope → they became more open in terms of attitude and perspective → when facing difficulties in life, they started seeing things more positively, and did not haggle over every ounce → they increased frequency of positive emotion (mental health) and felt more pleasant about life (sense of well-being)	Improvement of mental health and sense of well-being

			[3 <sup>rd</sup> -stage attendees, few mentions] Learnt meditation and breathing techniques → they practiced at home and at times when facing conflict with others → they felt more relaxed, and better able to maintain emotional calmness → they increased frequency of positive emotion (mental health) and felt more pleasant about life (sense of well-being)	
			In a group learning environment, they had chance to observe their own performance versus peers → they found they are not as dumb as they thought → they increased self-confidence	Increase of self-confidence
			In class they had chance to speak up in front of others → they overcome shyness and the fear in public speaking → they increased self-confidence	
			In class they played board games to exercise their brain → the games stimulated their mind and boosted memory → they felt brain performance improvement → they increased self-confidence	
			In class they had to greet, smile, and converse with classmates → they became accustomed to these social skills → they started greeting, smiling and converse with strangers met in life → they increased interaction with family members and people encountered in daily life (skills and strategy to maintain relationships)	Improvement on the skills and strategy to maintain relationships

			Learnt new knowledge → they had something to talk about when meeting people → they increased interaction with family members and friends (skills and strategy to maintain relationships)	
			By attending class, they met new people → they made new friends → they increased interaction with family members and people (skills and strategy to maintain relationships)	

## 2. Stakeholder Group: Attendees' Spouses

Inputs	Value of Inputs	Outputs	Chain of Events	Well-defined Outcomes
Time	0	650 people	Their spouses prepared nutritionally balanced meal → they adjusted meal variety and volume in-take, mainly on protein, vegetable, and fruits → they now take nutritionally balanced meal (diet quality)	Improvement of diet quality
			Their spouses taught them physical exercises → they started taking exercises regularly with spouses, for those who already taking then increased the time and variety of exercises (physical activity) → they felt improvement in stamina, muscle strength, body agility and flexibility	Increase of physical activity
			Program attendees became emotionally calmer and less agitated at home → there's improvement in family atmosphere → they	

			increased frequency of positive emotion (mental health) and felt more pleasant about life (sense of well-being)	Improvement of mental health and sense of well-being
			Program attendees became happier due to improvement of physical and mental health → the spouses reduced worries and concern → they increased frequency of positive emotion (mental health) and felt more pleasant about life (sense of well-being)	

### 3. Stakeholder Group: Seed Teachers

Inputs	Value of Inputs	Outputs	Chain of Events	Well-defined Outcomes
Time:	0	Number of sessions: 9  Number of certified teachers: 113	Learnt knowledge about 6 food categories and the importance of taking nutritionally balanced meal → (some) they believed they should set good example in front of the students → they started paying attention to what they eat → they adjusted the meal variety and volume in-take, mainly on protein, vegetable, and fruits → they now take nutritionally balanced meal (diet quality)	Improvement of diet quality
			Learnt physical exercises suitable for older adults → they believed they should set good example in front of the students → they started taking exercise regularly, or for those who had been exercising they increased time and variety of exercises (physical activity) → they felt improvement in stamina, muscle strength, body agility and flexibility	Increase of physical activity

			Taught the course → they overcome shyness and fear in public speaking → they improved self-perception → they increased self-confidence	Increase of self-confidence
			Taught the course → they acquired new knowledge → they found they can help others, or they found their capability improved → they increased self-confidence	
			Taught the course → they found their students and family members became healthier due to their teaching → (some) received recognition from students → they realized that they were doing something meaningful → they got a sense of self-accomplishment	Have a sense of self-accomplishment
			Taught the course → they wanted to benefit their students more → they proactively enriched their own knowledge and skills → (few) set a lifelong goal to become a volunteer teacher	Increase of involvement in learning knowledge and acquiring skills
			Taught the course → they saw their students' health condition improved → they wanted to benefit their students more → they proactively enriched their own knowledge and skills	
			Taught the course → they improved communication skills in terms of proactively greeting, listening and observation, have topics to share, better at expressing own thoughts etc. → they increased interaction with family members and people (skills and strategy to maintain relationships)	Improvement on the skills and strategy to maintain relationships

#### 4. Stakeholder Group: Site Teachers

Inputs	Value of Inputs	Outputs	Chain of Events	Well-defined Outcomes
Time	0	Number of class taught: 612 (2-hr/class)	Learnt knowledge about 6 food categories and the importance of taking nutritionally balanced meal → they adjusted the meal variety and volume in-take, mainly on protein, vegetable, and fruits → they now take nutritionally balanced meal (diet quality)	Improvement of diet quality
			Learnt physical exercises suitable for older adults → they started taking exercise regularly, or for those who had been exercising they increased time and variety of exercises (physical activity) → they felt improvement in stamina, muscle strength, body agility and flexibility	Increase of physical activity
			Tried to come up with new teaching skills → students' reaction was not positive → felt frustrated	Increased frequency of negative emotions (including stress, frustration): Excluded
			Teaching is an extra task on top of original work → experienced time pressure to finish all work in time → felt stressful	

Based on outcomes summarized in Table 7, the stakeholders experienced several intended and unintended changes. The common intended changes are:

- They improved diet quality by taking nutritionally balanced meal every day.
- They increased physical activity by exercising regularly.
- They improved mental health and obtained a sense of well-being.
- They enhanced social skills and the capability to manage relationship with others.



The unintended changes include:

- Program attendees improved sleep quality.
- Program attendees and seed teachers increased self-confidence.
- Seed teachers obtained a sense of self-accomplishment.
- Seed teachers increased involvement in learning or self-advancement activities.
- There is only one unintended negative change reported by site teachers, that's stress and frustration from work. We excluded such change because it is insignificant.

## Chapter 5: Stage 3 - Evidencing Outcomes and Giving Them a Value

In this chapter, we explain how we developed outcome indicators and collected data on the changes. We also discuss how we derived financial proxies for these outcomes.

### 5.1 Indicator Selection

Indicators are ways of knowing that change has happened. It is a measurement tool applied on outcomes, so we know whether the change has happened and by how much. There are subjective and objective indicators to complement each other.

Indicators are best identified through involving the stakeholders. We were able to develop indicators through verbatim collected during initial stakeholder engagement process. We also referred to some commonly adopted assessment tools including WHO-5 Well-being index, Rosenberg Self-Esteem Scale and Meaning of Life Questionnaire. All the indicators selected were thoroughly discussed with YSF core members to ensure suitability in assessment (see Table 8). Since there are many stakeholders involved in this project, we adopted quantitative research as data collection approach. This the step 3 of stakeholder engagement as described in 3.3, and the purposes of this research are:

- Validate the outcomes
- Assess the scale of impact for each outcome
- Examine their materiality
- Identify the four impact factors: deadweight, attribution, displacement, and drop-off

We validated the outcome occurrence by meeting criteria of both subjective and objective indicators. For subjective indicators, respondents needed to check 4 (improved/agreed) or 5 (greatly improved/agreed) on a 5-point Likert scale. For objective indicators, we mostly referred to the existing criteria of respective guidelines or assessment tools. For example, YSF identifies key dietary improvement areas are protein, vegetable and fruits taken each day. Therefore, stakeholders experiencing this outcome needed to show that they had either improved or greatly improved on their dietary behavior, and on at least two of those three food categories. According to Rosenberg self-esteem scale, scores above 26 is considered confident. Therefore, we adopted it as the criteria. As for how much has changed, since each objective indicator has different measurement scale, to standardize calculation, we applied distance travelled on subjective indicator to measure the level of change. Table 8 and Appendix 2 provide further details on the indicators and their criteria.

**Table 8. Table of Outcomes, Indicators and How Much Has Changed**

**Stakeholder Group: Program Attendees**

Well-defined outcome	Subjective Indicator (criteria: 4 or 5 on a 5-point scale)	Objective Indicator (criteria: specified below)	# of people experienced change	Amount of change per stakeholder
Improvement of diet quality	Self-report improvement on eating nutritionally balanced meal	Improvement on average daily volume in-take of protein, vegetable, or fruits (at least two food categories)	514	63.1%
Increase of physical activity	Self-report improvement on taking regular exercise (regular means at least 3 times/week, 20 min. each)	Increased frequency or time spent on regular exercise, weekly (changed on either one > 50% people)	598	64.6%
Improvement of sleep quality	Self-report improvement of sleep quality	Increased number of hours slept every day; or agreed or strongly agreed that “when I woke up, I felt refreshed and fully rested” (changed on either one > 50% people)	439	62.9%
Improvement of mental health and sense of well-being	Self-report improvement on overall mental status	Agreed or strongly agreed that now: I have felt pleasant and in good spirit; or I have felt calm and relaxed (either one > 50% of people)	772	75.3%
Increase of self-confidence	Self-report improvement on levels of self-confidence	Rated as confident on Rosenberg Self-Esteem Scale (scored above 26)	665	71.8%
Improvement on the skills and strategy to maintain relationships	Self-report improvement on communication skills, i.e., proactively greet, smile, and converse with others	Agreed or strongly agreed that who had made new friends and felt less isolated (> 50% people)	662	68.8%

### Stakeholder Group: Attendees' Spouses

Well-defined outcome	Subjective Indicator (criteria: 4 or 5 on a 5-point scale)	Objective Indicator (criteria: specified below)	# of people experienced change	Amount of change per stakeholder
Improvement of diet quality	Self-report improvement on eating nutritionally balanced meal	Improvement on average daily volume in-take of protein, vegetable, or fruits (at least two food categories)	214	72.2%
Increase of physical activity	Self-report improvement on taking regular exercise (regular means at least 3 times/week, 20 min. each)	Increased frequency or time spent on regular exercise (changed on either one > 50% people)	180	64.6%
Improvement of mental health and sense of well-being	Self-report improvement on overall mental status	Agreed or strongly agreed that now: I have felt pleasant and in good spirit; or I have felt calm and relaxed (either one > 50% people)	231	75.9%

### Stakeholder Group: Seed Teachers

Well-defined outcome	Subjective Indicator (criteria: 4 or 5 on a 5-point scale)	Objective Indicator (criteria: specified below)	# of people experienced change	Amount of change per stakeholder
Improvement of diet quality	Self-report improvement on eating nutritionally balanced meal	Improvement on average daily volume in-take of protein, vegetable, or fruits (at least two food categories)	95	81.1%
Increase of physical activity	Self-report improvement on taking regular exercise (regular means at least 3 times/week, 20 min. each)	Increased frequency or time spent on regular exercise (changed on either one > 50% people)	95	74.3%

Increase of self-confidence	Self-report improvement on levels of self-confidence	Rated as confident on Rosenberg Self-Esteem Scale (scored above 26)	100	91.0%
Have a sense of self-accomplishment	Self-report improvement with an enhanced feeling of self-accomplishment	Agreed or strongly agreed that after attending the program: I have a good sense of what makes my life meaningful; or I have discovered a satisfying life purpose (either one > 50% people)	100	91.0%
Increase involvement in learning or self-enhancement activities	Self-report improvement on levels of self-confidence	Increased number of hours spent on self-learning activities (> 50% people)	92	80.6%
Improvement on the skills and strategy to maintain relationships	Self-report improvement on communication skills, i.e., proactively greet, smile, and converse with others	Self-reported that who had made new friends and felt less isolated (> 50% people)	97	82.9%

### Stakeholder Group: Site Teachers

Well-defined outcome	Subjective Indicator (criteria: 4 or 5 on a 5-point scale)	Objective Indicator (criteria: specified below)	# of people experienced change	Amount of change per stakeholder
Improvement of diet quality	Self-report improvement on eating nutritionally balanced meal	Improvement on average daily volume in-take of protein, vegetable, or fruits (at least two food categories)	7	71.4%
Increase of physical activity	Self-report improvement on taking regular exercise (regular means at least 3 times/week, 20 min. each)	Increased frequency or time spent on regular exercise (changed on either one > 50% people)	6	66.7%

In addition, Table 9 to Table 12 show the distributions of stakeholders’ responses on outcomes. Indeed, few stakeholders experienced no changes or even negative changes on outcomes. For example, about 0.3% to 2.6% of the program attendees responded that they have negative changes (much worse/significant decrease or worse/decrease) on the outcomes of “Improvement of diet quality”, “Increase of physical activity”, “Improvement of sleep quality”, “Improvement of mental health and sense of well-being”, “Increase of self-confidence”, and “Improvement on the skills and strategy to maintain relationships.” Such negative effects were also considered to calculate the statistics of “how much has changed” by the approach of distance travelled. In such approach, for those whom did not experience changes on outcomes, they did not contribute to the number of “Amount of change per stakeholder.” Generally speaking, people who experienced negative changes on the well-defined outcomes only account for very small portion of the samples.

**Table 9. Program Attendees’ Responses on Outcomes**

Improvement of diet quality?	Percentage	Increase of physical activity?	Percentage	Improvement of sleep quality?	Percentage
Much worse	0.6%	Significant decrease	0.3%	Much worse	0.0%
Worse	0.6%	Decrease	2.6%	Worse	1.0%
About the same	13.8%	About the same	21.2%	About the same	43.5%
Better	62.7%	Increase	53.7%	Better	41.2%
Much better	22.2%	Significant increase	22.2%	Much better	14.3%
Improvement of mental health and sense of well-being?	Percentage	Increase of self-confidence?	Percentage	Improvement on the skills and strategy to maintain relationships?	Percentage
Much worse	0.3%	Significant decrease	0.0%	Much worse	0.3%
Worse	0.6%	Decrease	1.9%	Worse	0.6%
About the same	9.7%	About the same	16.2%	About the same	14.3%
Better	44.2%	Increase	46.1%	Better	52.3%
Much better	45.1%	Significant increase	35.7%	Much better	31.5%

**Table 10. Attendees’ Spouses’ Responses on Outcomes**

Improvement of diet quality?	Percentage	Increase of physical activity?	Percentage	Improvement of mental health and sense of well-being?	Percentage
Much worse	0.0%	Significant decrease	0.0%	Much worse	0.0%
Worse	0.0%	Decrease	0.0%	Worse	0.0%
About the same	5.3%	About the same	36.8%	About the same	28.9%
Better	52.6%	Increase	44.7%	Better	34.2%
Much better	42.1%	Significant increase	18.4%	Much better	36.8%

**Table 11. Seed Teachers' Responses on Outcomes**

Improvement of diet quality?	Percentage	Increase of physical activity?	Percentage	Increase of self-confidence?	Percentage
Much worse	0.0%	Significant decrease	2.3%	Significant decrease	0.0%
Worse	0.0%	Decrease	2.3%	Decrease	2.3%
About the same	14.0%	About the same	9.3%	About the same	7.0%
Better	32.6%	Increase	44.2%	Increase	16.3%
Much better	53.5%	Significant increase	41.9%	Significant increase	74.4%
Have a sense of self-accomplishment	Percentage	Increase involvement in learning or self-enhancement activities	Percentage	Improvement on the skills and strategy to maintain relationships?	Percentage
Strongly disagree	0.0%	Significant decrease	0.0%	Much worse	0.0%
Disagree	4.7%	Decrease	2.3%	Worse	4.7%
Neutral	4.7%	About the same	14.0%	About the same	7.0%
Agree	18.6%	Increase	32.6%	Better	30.2%
Strongly agree	72.1%	Significant increase	51.2%	Much better	58.1%

**Table 12. Site Teachers' Responses on Outcomes**

Improvement of diet quality?	Percentage	Increase of physical activity?	Percentage
Much worse	0.0%	Significant decrease	0.0%
Worse	0.0%	Decrease	11.1%
About the same	22.2%	About the same	22.2%
Better	44.4%	Increase	44.4%
Much better	33.3%	Significant increase	22.2%

## 5.2 Examine Materiality

When we define outcomes, one of the principles in SROI to consider is materiality. It is an accounting principle adopted into SROI. It refers to whether the omission or misstatement of an outcome could influence the decisions, actions and performance of an organization or its stakeholders. Meanwhile, an organization cannot include every outcome that each individual stakeholder experiences because organization needs to maximize its impact by prioritizing resource allocation. Therefore, there may be outcomes relevant to a few individuals, but when reviewed under the whole activity context they become relatively minimal so considered as immaterial. There may also be outcomes that are relevant but not significant because of the low quantified impact. Materiality is determined by two factors: relevance and significance of an outcome. These two are the sequential steps in examining materiality:

### Step 1: Examining relevance

Based on initial qualitative engagement findings, we determined what stakeholder groups are affected by which activities, and the outcomes they experienced. In this stage, we excluded two outcomes from the program attendees' group. These are "being more grateful and generous to family members", and "felt relieved for death". Their chains of events are listed as follows

Learnt mindfulness-eating => they started appreciating people around them who supported their daily lives => they became grateful and generous to family members

Learnt something about thanatology => they felt more prepared for death => they could take death lightly and removed fear about it

These two changes require inner self-reflection which is latent in nature. Based on the relevance judgement, we excluded these two changes. All the outcomes listed in Table 8 are related to the policies, stakeholders, work of peers, or societal norms of the YSF.

### Step 2: Examining significance

Based on quantitative research data we were able to assess the scale of impact on the outcomes. All the outcomes listed in Table 8 pass the 25% threshold in our sample survey. For site teachers, we excluded three outcomes, which are "have a sense of self-accomplishment", "increase involvement to participate in learning knowledge and acquiring skills" and "increase frequency of negative emotions (e.g., stress, frustration)", because only one or two persons responded such changes in our survey. As to why such discrepancy had happened, we verified with the site teachers at later verification stage. They obtained a sense of self-accomplishment from the overall job not only from facilitating the SEP. The workload is sometimes heavy therefore not all of them had time to devote to self-learning activities. Whereas for the negative feeling which is largely influenced by workload, and it has high and low seasonality. Therefore, it is a temporary emotional reaction rather than a material impact in life. The site teacher also rated its financial proxy as \$0 because it can be resolved easily.

### 5.3 Duration

Duration refers to how long each outcome will last for. Some outcomes may last if the program is provided, but some outcomes may have a long-term impact. The length of time will directly influence future value assessed. The length of time also varies depending on the nature of the changes and different stakeholder groups. Based on the results of questionnaire survey, all the changes start in period of activity.

For health-related changes, including diet quality, physical activity, and sleep quality, older adult program attendees and their spouses were overall optimistic about how long these changes will last. Some of them believed these changes will be lifetime long (until physical condition refrain them from doing so) because they formed the habit already. Some stakeholders projected different length of time and averaged around 6-8 years. We referenced existing studies on older adults'

behavioral adherence. One follow-up evaluation was conducted of 101 older men and women (mean age 67 years old) who had participated in a randomized study of physiological and psychological effects of aerobic exercise. 85 samples completed the follow-up evaluation, and almost all of them (94%) reported continuing with physical activity [18]. In other research about older adults' health behavior maintenance, it has been identified that the most important influence factor is self-efficacy [19]. The originator of the theory, Albert Bandura names four sources of efficacy beliefs, the first and the foremost source is through performance experiences [20]. For those stakeholders who reported experiencing positive changes, we judged that they will be able to maintain the change as they projected without the concern of over-claiming. But the duration of outcomes is still limited to at most 5 years, where outcomes start during the period of activity (Year 0).

As for the mental related and social/interpersonal changes, stakeholders also projected long length of duration around 6-7 years as well. These changes are related to social support and cognitive variables, which are difficult to control and predict. To comply with the not over-claiming principle, we decided to take a conservative approach by setting the duration to at most 5 years as well.

For seed and site teachers, they were even more optimistic in projecting how long these outcomes will remain, and their changes started in period of activity. The duration projected was around 9-10 years and some also believed can be lifelong. This is because they already formed the habit and many of them foresee, they would remain facilitating SEP in the near future. Though it is likely they may maintain these outcomes longer, nevertheless we remained conservative and set the duration to at most 5 years as considered in other stakeholder groups. Table 13 summarizes the duration of impact experienced by each stakeholder group.

**Table 13. Summary of Duration**

<b>Outcomes</b>	<b>Average</b>	<b>Adjustment</b>
<b>Program Attendees</b>		
Improvement of diet quality	7.0	5
Increase of physical activity	7.0	5
Improvement of sleep quality	7.2	5
Improvement of mental health and sense of well-being	7.1	5
Increase of self-confidence	2.4	2
Improvement on the skills and strategy to maintain relationships	2.6	2
<b>Attendees' Spouses</b>		
Improvement of diet quality	6.3	5
Increase of physical activity	8.3	5
Improvement of mental health and sense of well-being	6.1	5
<b>Seed Teachers</b>		
Improvement of diet quality	10.2	5
Increase of physical activity	9.5	5
Increase of self-confidence	12.0	5
Have a sense of self-accomplishment	11.5	5
Increase involvement to participate in learning knowledge and acquiring skills	11.1	5
Improvement on the skills and strategy to maintain relationships	12.0	5
<b>Site Teachers</b>		
Improvement of diet quality	47.1	5
Increase of physical activity	45.0	5

## 5.4 Valuing outcomes

This is the step in SROI analysis where we assess the financial value of outcomes. This is done through a process where we identify financial proxy for the outcome, so for outcomes that do not have readily available market price can be monetized. By assigning a value to an outcome, we can establish its significance in the overall impact context.

During stakeholder engagement, we found that older adults responded well on concrete questions. For hypothetical questions like valuing outcome worth can be a slightly challenging exercise for them. After considering different approaches with the YSF, we decided to use a value-based method, stated preference approach, to ask the value that the stakeholders are willing to pay for each outcome. We presented market substitute for each outcome and asked stakeholders to evaluate whether the perceived value of SEP is higher, on-par, or lower versus those alternative options. If higher or lower, then by how much. For the market substitutes, where possible, we adopted similar alternatives that are at low cost in the market. This is to avoid over-claiming outcome value. Government-funded programs are primary choices because they are widely accessible and at affordable cost to general older adult citizens. For example, the market substitute for the outcome regarding improvement of diet quality, a similar dietary course "Nutrition planning and diet for older adults" course held by Shih Chien University was adopted as the contingent value. We asked the program attendees whether they were willing to pay higher or lower than the course fee.

Result showing that most of the program attendees perceived the outcomes' value being higher than the market alternatives. Some even valued SEP as "priceless". This is because they found the SEP course effectively facilitated their behavior or circumstance changes. On top of that, the warmth and genuine care from the YSF staffs were highly cherished. Some stakeholders we interviewed mentioned that they participated in other activities or program elsewhere before or in-parallel with SEP, but none of them were as effective as SEP. For attendees' spouses, they also valued SEP outcomes higher than market substitutes. As for seed teachers and site teachers, depending on the nature of the outcomes, some they perceived the outcomes' value were equivalent to market substitutes, some were lower. Understanding that value is in the eye of the stakeholder, we took stakeholders' quoted value and averaged out new sets of value. We then conducted face-to-face (older adults program attendees) and phone (spouses, seed teachers and site teachers) interview to selected stakeholders to verify the financial proxies. Table 14 summarizes the financial proxy adopted for each outcome in this study.

**Table 14. Summary of Financial Proxy for Each Outcome**

**Program Attendees**

Outcomes	Price (NT\$)	Financial Proxy Adopted
Improvement of diet quality	10,800	"Older adults nutrition planning and diet" course, held by Shih Chien University
Increase of physical activity	11,200	Personal trainer, one-hour training per week, market rate
Improvement of sleep quality	8,000	Mindfulness Comfort Sleep 4-week Course, offered by Chinese Mindfulness-Based Stress Reduction Service
Improvement of mental health and sense of well-being	13,200	Silver Age College one semester tuition fee, government subsidization cost
Increase of self-confidence	8,750	Stakeholders' perceived values average out and equates to 4.6 hours/week of volunteer service
Improvement on the skills and strategy to maintain relationships	8,000	Communication skills course, offered by Digital Education Institute of Institute for Information Industry

**Attendees' Spouses**

Outcomes	Price (NT\$)	Financial Proxy Explanation
Improvement of diet quality	4,800	Meal delivery service for disable older adults, standard fee regulated by Social Bureau, Taipei City Government
Increase of physical activity	5,660	2-month gym expense
Improvement of mental health and sense of well-being	5,800	Local tour package, published on Tourism Bureau, Ministry of Transportation and Communications

## Seed Teachers

Outcomes	Price (NT\$)	Financial Proxy Explanation
Improvement of diet quality	3,450	Community College course: Silver Age's Healthy Kitchen, course tuition
Increase of physical activity	3,450	Community College course: Silver Age's Physical Fitness course, course tuition
Increase of self-confidence	12,000	The average value of stakeholders' perceived values
Have a sense of self-accomplishment	12,400	The average value of stakeholders' perceived values
Increase of involvement in learning knowledge and acquiring skills	9,640	Silver Age course instructor training cost, subsidized by Ministry Education
Improvement on the skills and strategy to maintain relationships	13,200	The average of stakeholders' perceived values

## Site Teachers

Outcomes	Price (NT\$)	Financial Proxy Explanation
Improvement of diet quality	3,450	Community College course: Silver Age's Healthy Kitchen, course tuition
Increase of physical activity	3,450	Community College course: Silver Age's Physical Fitness course, course tuition

### 5.5 Relative Importance and Ranking

To understand the relative importance of each outcome for stakeholders, the stakeholders were asked “How important is this outcome to stakeholders? Please rate on the scale below how important these changes are for you. (On a scale of 1-10, 1 being the least important and 5 or 10 being the most important)” in the questionnaire. The rankings of the outcomes were determined the scale value of the outcome. Table 15 summarizes the relative importance and ranking of outcomes for stakeholders. For example, the importance scale of “Improvement of diet quality”, “Increase of physical activity”, “Improvement of sleep quality”, “Improvement of mental health and sense of well-being”, “Increase of self-confidence”, and “Improvement on the skills and strategy to

maintain relationships” is 8, 8, 6, 9, 6, and 6, respectively. Accordingly, their corresponding ranking is 2, 2, 4, 1, 4, and 4, respectively. This ranking is informative to understand the importance of changes to the stakeholders and capture what matters most to them. This step complies with the principle of “Value the things that matter” and “be transparent.”

**Table 15. The Relative Importance and Ranking of Outcomes for Stakeholders**

<b>Outcomes</b>	<b>Importance (Scale of 1-10)</b>	<b>Ranking</b>
<b>Program Attendees</b>		
Improvement of diet quality	8	2
Increase of physical activity	8	2
Improvement of sleep quality	6	4
Improvement of mental health and sense of well-being	9	1
Increase of self-confidence	6	4
Improvement on the skills and strategy to maintain relationships	6	4
<b>Attendees’ Spouses</b>		
Improvement of diet quality	8	3
Increase of physical activity	9	1
Improvement of mental health and sense of well-being	9	1
<b>Seed Teachers</b>		
Improvement of diet quality	6	5
Increase of physical activity	6	5
Increase of self-confidence	9	1
Have a sense of self-accomplishment	9	1
Increase involvement to participate in learning knowledge and acquiring skills	7	2
Improvement on the skills and strategy to maintain relationships	9	1
<b>Site Teachers</b>		
Improvement of diet quality	8	1
Increase of physical activity	8	1

## Chapter 6: Stage 4 - Establishing Impact

Based on the principle in SROI of not over-claiming project impact, it is necessary to consider what other external factors that may have influenced or affected the changes that stakeholders experienced. There are four impact factors to be considered:

- What would have happened anyway (deadweight)?
- Have the activities displaced value from elsewhere (displacement)?
- What is the contribution of others (attribution)?
- If an outcome is projected to last more than 1 year, what is the rate at which value created by a project reduces over future years (drop-off)?

By examine these factors, this ensures that we only analyze values resulted from the activity.

### 6.1 Deadweight

Deadweight is a percentage applied to a proxy which represents how much of an outcome would have happened anyway regardless of the intervention. In quantitative survey stakeholders were being asked how likely they think that the change would happen had they not attended the program. The results were then calculated as a percentage. We then averaged all numbers calculated to derive deadweight ratio for each change. For program attendees, the average deadweight ranges from 15% to 21%. For the attendees' spouses, it ranges from 14% to 21%. For seed teachers, it ranges from 18% to 23%, and for site teachers it is 21% (see Table 16).

During initial stakeholder engagement, most program attendees and seed teachers shared with us how passive and unhealthy their lives were like before attending SEP (hopeless, boring, always sat on sofa and fell asleep, disturbing physical problems, indifferent to people etc.). It is only after attending SEP that they started experiencing those positive changes. Therefore, upon seeing the quantitative survey result where deadweight ratio, we were curious what other influence factors were there. We verified with the stakeholders and realized that many of them acquired health related information from mass media, therefore this is the other contributing factor to the changes. Meanwhile, they spontaneously mentioned that only SEP facilitated the behavioral change effectively while obtaining information from mass media could not. There were a few stakeholders who mentioned participating in other activities like dance program, going to church or community service in parallel, so without SEP the changes would still happen anyway but would be at lesser degree since SEP is more effective. Therefore, we judged that it is at low risk accepting the deadweight ratios derived from quantitative research.

**Table 16. Summary of Deadweight Rates**

**Program Attendees**

<b>Outcomes</b>	<b>Deadweight (%)</b>
Improvement of diet quality	18%
Increase of physical activity	20%
Improvement of sleep quality	15%
Improvement of mental health and sense of well-being	18%
Increase of self-confidence	21%
Improvement on the skills and strategy to maintain relationships	20%

**Attendees' Spouses**

<b>Outcomes</b>	<b>Deadweight (%)</b>
Improvement of diet quality	15%
Increase of physical activity	21%
Improvement of mental health and sense of well-being	14%

**Seed Teachers**

<b>Outcomes</b>	<b>Deadweight (%)</b>
Improvement of diet quality	18%
Increase of physical activity	22%
Increase of self-confidence	24%
Have a sense of self-accomplishment	21%
Increase of involvement in learning knowledge and acquiring skills	22%
Improvement on the skills and strategy to maintain relationships	23%

**Site Teachers**

<b>Outcomes</b>	<b>Deadweight (%)</b>
Improvement of diet quality	21%
Increase of physical activity	21%

## 6.2 Displacement

Displacement is a percentage indicating how much of the outcome recorded has displaced other outcomes, meaning the outcome from our project was achieved at the expense of another existing outcome. In the initial stakeholder engagement, we confirmed that there is no reported displacement. The program attendees are either retirees or empty-nesters housewives who led inactive lifestyle. Only one seed teacher mentioned that the SEP conflicted with his other activity, for which he was able to re-arrange easily without causing negative impact. For attendees' spouses, since their involvement in SEP was low, there is no displacement reported neither. For site teachers, facilitating course is part of their job. Therefore, there is no displacement for all stakeholder groups.

## 6.3 Attribution

Attribution is a percentage applied to a proxy based on how much other organizations have contributed to achieving an outcome. This means we consider of external factors that may have played a part in the changes that are identified, so to avoid over-claiming project impact.

Same as deadweight, we asked stakeholders who else also contributed to the change. We then averaged all numbers calculated to derive attribution ratio for each change. For program attendees, the average attribution ranges from 10% to 15%. For the attendees' spouses, it ranges from 8% to 12%. For seed teachers, it ranges from 11% to 23%, and for site teachers it is 7% to 9%. As described in the deadweight section, we verified with stakeholders and majority of them see that mass media was the main contributor. They autonomously acknowledged that simply knowing does not cause behavioral change. Therefore, we judged that it is at low risk accepting the quantitative survey results.

For seed teachers, they are more active than program attendees and some of them participated in other learning or community activities in parallel. Therefore, the attribution rates are higher for "increased involvement in learning knowledge and acquiring skills" and "improvement on the skills and strategy to maintain relationships". Whereas for site teachers, they mainly acquired health knowledge through working at YSF. Therefore, the attribution rates for "improvement on diet quality" and "Increase of physical activity" are lower than other stakeholder groups. Table 17 summarizes the attribution rate for each outcome.

**Table 17. Summary of Attribution Rates**

**Program Attendees**

<b>Outcomes</b>	<b>Attribution (%)</b>
Improvement of diet quality	10%
Increase of physical activity	15%
Improvement of sleep quality	14%
Improvement of mental health and sense of well-being	13%
Increase of self-confidence	12%
Improvement on the skills and strategy to maintain relationships	12%

**Attendees' Spouses**

<b>Outcomes</b>	<b>Attribution (%)</b>
Improvement of diet quality	8%
Increase of physical activity	10%
Improvement of mental health and sense of well-being	12%

**Seed Teachers**

<b>Outcomes</b>	<b>Attribution (%)</b>
Improvement of diet quality	11%
Increase of physical activity	18%
Increase of self-confidence	18%
Have a sense of self-accomplishment	21%
Improvement on the skills and strategy to maintain relationships	23%
Improvement on the skills and strategy to maintain relationships	23%

**Site Teachers**

<b>Outcomes</b>	<b>Attribution (%)</b>
Improvement of diet quality	7%
Increase of physical activity	9%

## 6.4 Drop-off

Drop-off refers to the diminishing worth of an outcome over time. Effects of outcomes often declined gradually as time passes. When projecting future values, the drop-off effect has to be taken into consideration. For all stakeholder groups, they were generally optimistic about the lasting effect and projected less than 10% drop-off rate. The question we have is, are they too optimistic?

We referenced national statistics tracking data on older adults for possible answer. In 2015 National Older Adults Physical Fitness Survey [21], taking cardiorespiratory endurance result as example, for females within 65-79 year-old, every 5-year age bracket shows a 7% decrease in endurance level. For those above 80-year-olds, the decrease rate grew to around 10%. All other fitness aspects showing similar rate and linear decline trend without steep drop. In the same national survey, it indicates the frequency of interpersonal interaction decrease by 4% and 10% respectively for aforementioned two age brackets. Hence, our results for program attendees and their spouses comply with the not over-claiming principle.

For seed and site teachers, since they are relatively younger than program attendees, we referred to 2013 National Health Interview Survey [22] conducted on 12-64 year-old citizens for possible answer. In terms of vegetable and fruits in-take, the weekly consumption frequency increased by 27% from 24-39 age bracket to 40-64 bracket. For taking weekly 30-minute exercise, the frequency increased by 7% from 24-39 age bracket to 40-64 bracket. The incidence of positive psychological state increased by 24% when comparing both age brackets. Hence, our results comply with the not over-claiming principle.

**Table 18. Summary of Drop-off Rates**

	<b>Outcomes</b>	<b>Drop-off (%)</b>
Program Attendees	Improvement of diet quality	10%
	Increase of physical activity	15%
	Improvement of sleep quality	14%
	Improvement of mental health and sense of well-being	13%
	Increase of self-confidence	12%
	Improvement on the skills and strategy to maintain relationships	12%
Attendees' Spouses	Improvement of diet quality	7%
	Increase of physical activity	2%
	Improvement of mental health and sense of well-being	8%

	Improvement of diet quality	8%
	Increase of physical activity	9%
Seed	Increase of self-confidence	3%
Teachers	Have a sense of self-accomplishment	7%
	Increase involvement to participate in learning knowledge and acquiring skills	6%
	Improvement on the skills and strategy to maintain relationships	3%
Site	Improvement of diet quality	7%
Teachers	Increase of physical activity	17%

## Chapter 7: Stage 5 - Calculating SROI and Sensitivity Analysis

In this chapter, we will calculate the SROI and SROI ratio. We will also run sensitivity test to test the assumptions that are implicit in the model.

### 7.1 SROI Analysis – How is it calculated?

The overall SEP Present Value was NT\$78,392,319, and the Net Present Value was NT\$71,566,867.

This financial impact is calculated using below formula:

(Number of people experienced change x how much change experienced x outcome financial proxy)

- (deadweight + displacement + attribution + drop-off)

= (Present value, calculated for each duration year then sum up) – (Financial inputs into the program)

= Net present value

Table 19 provides summary of calculated value by stakeholder groups. The total values created for program attendees, attendees' spouses, seed teachers, and site teachers are NT\$58,984,615, NT\$8,049,796, NT\$12,588,028, and NT\$74,775, respectively.

### 7.2 SROI Ratio

The SROI ratio is calculated using below formula:

$$\text{SROI Value} = \frac{\text{Present Value (NT\$ 78,392,319)}}{\text{Value of Inputs (NT\$6,825,452)}}$$

The results in a **\$11.49: \$1** ratio. This means that this analysis estimates that for every **NT\$1** that YSF invested in the SEP a social value of **NT\$11.49** was created.

Table 19. Table of Calculated SROI Values

1. Program Attendees

Well-defined Outcomes	Year 0	Year 1	Year 2	Year 3	Year 4	Sum	Total
Improvement of diet quality	2,579,436.23	2,321,492.60	2,089,343.34	1,880,409.01	1,692,368.11	10,563,049.29	58,976,111.19
Increase of physical activity	2,927,218.86	2,488,136.03	2,114,915.62	1,797,678.28	1,528,026.54	10,855,975.33	
Improvement of sleep quality	1,623,480.29	1,396,193.05	1,200,726.02	1,032,624.38	888,056.97	6,141,080.72	
Improvement of mental health and sense of well-being	5,482,729.85	4,769,974.97	4,149,878.22	3,610,394.06	3,141,042.83	21,154,019.93	
Increase of self-confidence	2,895,076.24	2,547,667.09	0.00	0.00	0.00	5,442,743.33	
Improvement on the skills and strategy to maintain relationships	2,563,426.91	2,255,815.68	0.00	0.00	0.00	4,819,242.59	

2. Attendees' Spouses

Well-defined Outcomes	Year 0	Year 1	Year 2	Year 3	Year 4	Sum	Total
Improvement of diet quality	583,449.90	542,608.40	504,625.82	469,302.01	436,450.87	2,536,436.99	8,058,040.11
Increase of physical activity	469,227.36	459,842.81	450,645.96	441,633.04	432,800.38	2,254,149.55	
Improvement of mental health and sense of well-being	766,741.33	705,402.02	648,969.86	597,052.27	549,288.09	3,267,453.57	

### 3. Seed Teachers

Well-defined Outcomes	Year 0	Year 1	Year 2	Year 3	Year 4	Sum	Total
Improvement of diet quality	193,896.48	178,384.76	164,113.98	150,984.86	138,906.07	826,286.16	12,596,265.29
Increase of physical activity	156,715.88	142,611.45	129,776.42	118,096.54	107,467.86	654,668.16	
Increase of self-confidence	679,406.77	659,024.56	639,253.83	620,076.21	601,473.93	3,199,235.30	
Have a sense of self-accomplishment	699,638.16	650,663.49	605,117.04	562,758.85	523,365.73	3,041,543.27	
Increase involvement in learning knowledge and acquiring skills	429,816.31	404,027.33	379,785.69	356,998.55	335,578.64	1,906,206.52	
Improvement on the skills and strategy to maintain relationships	630,369.61	611,458.52	593,114.76	575,321.32	558,061.68	2,968,325.89	

### 4. Site Teachers

Well-defined Outcomes	Year 0	Year 1	Year 2	Year 3	Year 4	Sum	Total
Improvement of diet quality	9,038.51	8,405.81	7,817.41	7,270.19	6,761.27	39,293.19	74,599.46
Increase of physical activity	9,902.83	8,219.35	6,822.06	5,662.31	4,699.72	35,306.27	

### 7.3 Sensitivity Analysis

The results demonstrate highly significant value created by SEP and is based on the application of the principles of the SROI framework. This calculation is built upon stakeholders' experiences that is qualitative in nature, therefore uncertainties were unavoidable. It is useful to undertake a sensitivity analysis to assess which uncertainties have the greatest effect on the result. When we test which changes have a significant impact on the overall ratio, we will be able to identify the priority areas in managing the value creation.

The standard requirement is to check changes to uncertain factors that include

- outcome quantities,
- financial proxies,
- duration, and
- deadweight, attribution, and drop-off

In the following discussions, we use one-way sensitivity analysis to assess the impact that  $\pm 10\%$  changes in outcome quantities, financial proxies, deadweight, attribution, and drop-off will have on the SROI number, because a raised and lowered 10% parameter perturbation is frequently adopted. Meanwhile, we increase or decrease 1-year of the duration for each outcome (with lower bound = 1 year and upper bound = 5 years) and see its impact on SROI.

The one-way sensitivity analysis results of outcome quantities and financial proxies are shown in Table 20, where we can see the ranges of SROI caused by  $\pm 10\%$  changes in outcome quantities and financial proxies. For example, while a 10% increase (from 514 to 565) in quantity of "Improvement of diet quality" results in a 1.39% increase (from 11.49 to 11.64) in SROI, a 10% decrease (from 514 to 463) in quantity of "Improvement of diet quality" results in a 1.39% decrease (from 11.49 to 11.33) in SROI. The  $\pm 10\%$  changes in financial proxies has the same effects as quantity of outcomes on SROI, because they are linear to each other. The three most important factors affecting the results of SROI are "Improvement of mental health and sense of well-being", "Improvement of diet quality", and "Increase of physical activity." The impacts of their  $\pm 10\%$  changes on SROI are  $\pm 2.70\%$ ,  $\pm 1.39\%$ , and  $\pm 1.39\%$ , respectively. The reliability of the number of people experiencing the outcome of "Improvement of mental health and sense of well-being" is the most important factor to the reliability of SROI number. On the other hand, the impacts of other factors on SROI are generally not significant, because their  $\pm 10\%$  changes on SROI are less than 1%. Table 20 indicates that the minimum and maximum value of SROI caused by the uncertainties of outcome quantities and financial proxies is 11.18 and 11.79, respectively.

**Table 20. One-way Sensitivity Analysis of Outcome Quantities and Financial Proxies**

<b>Outcomes</b>	<b>Quantity Range (-10% to +10%)</b>	<b>Proxy Range (-10% to +10%)</b>	<b>SROI Range</b>	<b>SROI Change Percentage</b>
<b>Program Attendees</b>				
Improvement of diet quality	(463, 565)	(9,720, 11,880)	(11.33, 11.64)	± 1.39%
Increase of physical activity	(538, 658)	(10,080, 12,320)	(11.33, 11.64)	± 1.39%
Improvement of sleep quality	(395, 483)	(7,200, 8,800)	(11.40, 11.57)	± 0.78%
Improvement of mental health and sense of well-being	(695, 849)	(11,880, 14,520)	(11.18, 11.79)	± 2.70%
Increase of self-confidence	(599, 732)	(7,875, 9,625)	(11.41, 11.57)	± 0.70%
Improvement on the skills and strategy to maintain relationships	(596, 728)	(7,200, 8,800)	(11.42, 11.56)	± 0.61%
<b>Attendees' Spouses</b>				
Improvement of diet quality	(193, 235)	(4,320, 5,280)	(11.45, 11.52)	± 0.35%
Increase of physical activity	(162, 198)	(5,094, 6226)	(11.45, 11.52)	± 0.35%
Improvement of mental health and sense of well-being	(208, 254)	(5,220, 6380)	(11.44, 11.53)	± 0.44%
<b>Seed Teachers</b>				
Improvement of diet quality	(86, 105)	(3,105, 3,795)	(11.47, 11.50)	± 0.17%
Increase of physical activity	(86, 105)	(3,105, 3,795)	(11.48, 11.50)	± 0.09%
Increase of self-confidence	(90, 110)	(10,800, 13,200)	(11.44, 11.53)	± 0.44%
Have a sense of self-accomplishment	(90, 110)	(11,160, 13,200)	(11.44, 11.53)	± 0.44%
Increase involvement to participate in learning knowledge and acquiring skills	(83, 101)	(8,676, 10,604)	(11.46, 11.51)	± 0.26%
Improvement on the skills and strategy to maintain relationships	(87, 107)	(11,880, 14,520)	(11.44, 11.53)	± 0.44%
<b>Site Teachers</b>				
Improvement of diet quality	(5, 6)	(3,105, 3,795)	(11.49, 11.49)	± 0%
Increase of physical activity	(5, 7)	(3,105, 3,795)	(11.49, 11.49)	± 0%

Regarding the duration, its one-way sensitivity results on SROI are summarized in Table 21. The three most important factors affecting the results of SROI are “Improvement of mental health and sense of well-being”, “Increase of self-confidence”, and “Improvement on the skills and strategy to maintain relationships”. The impacts of their 1-year changes on SROI are  $\pm 3.92\%$ ,  $\pm 3.22\%$ , and  $\pm 2.87\%$ , respectively. Most of the other factors have little impacts on SROI, because their  $\pm 1$ -year changes resulted in less than 1% change on SROI. The minimum and maximum value of SROI from this sensitivity analysis is 11.04 and 11.81, respectively.

**Table 21. One-way Sensitivity Analysis of Duration**

Outcomes	Duration Range (-1yr to +1yr) max 5-yr	SROI Range	SROI Change Percentage
Program Attendees			
Improvement of diet quality	(4, 5)	(11.25, 11.49)	(-2.09%, 0%)
Increase of physical activity	(4, 5)	(11.43, 11.49)	(-0.52%, 0%)
Improvement of sleep quality	(4, 5)	(11.36, 11.49)	(-1.13%, 0%)
Improvement of mental health and sense of well-being	(4, 5)	(11.04, 11.49)	(-3.92%, 0%)
Increase of self-confidence	(1, 3)	(11.12, 11.81)	(-3.22%, 3.22%)
Improvement on the skills and strategy to maintain relationships	(1, 3)	(11.16, 11.77)	(-2.87%, 2.87%)
Attendees’ Spouses			
Improvement of diet quality	(4, 5)	(11.43, 11.49)	(-0.52%, 0%)
Increase of physical activity	(4, 5)	(11.45, 11.49)	(-0.35%, 0%)
Improvement of mental health and sense of well-being	(4, 5)	(11.41, 11.49)	(-0.44%, 0%)
Seed Teachers			
Improvement of diet quality	(4, 5)	(11.47, 11.49)	(-0.17%, 0%)
Increase of physical activity	(4, 5)	(11.47, 11.49)	(-0.17%, 0%)
Increase of self-confidence	(4, 5)	(11.40, 11.49)	(-0.78%, 0%)
Have a sense of self-accomplishment	(4, 5)	(11.41, 11.49)	(-0.70%, 0%)
Increase involvement to participate in learning knowledge and acquiring skills	(4, 5)	(11.44, 11.49)	(-0.44%, 0%)

Improvement on the skills and strategy to maintain relationships	(4, 5)	(11.41, 11.49)	(-0.70%, 0%)
Site Teachers			
Improvement of diet quality	(4, 5)	(11.49, 11.49)	± 0%
Increase of physical activity	(4, 5)	(11.49, 11.49)	± 0%

The one-way sensitivity analysis results of deadweight are shown in Table 22, where we can see the ranges of SROI caused by  $\pm 10\%$  changes in deadweight for each outcome. For example, while a 10% increase (from 18% to 20%) in the deadweight of “Improvement of mental health and sense of well-being” causes a 0.61% decrease (from 11.49 to 11.42) in SROI, a 10% decrease (from 18% to 16%) in the deadweight of “Improvement of mental health and sense of well-being” causes a 0.61% increase (from 11.49 to 11.55) in SROI. The three most important deadweights affecting the results of SROI are the ones of “Improvement of mental health and sense of well-being”, “Improvement of diet quality”, and “Increase of physical activity.” The impacts of their  $\pm 10\%$  changes on SROI are  $\pm 0.61\%$ ,  $\pm 0.35\%$ , and  $\pm 0.35\%$ , respectively. Comparing to the sensitivity analysis results of outcome quantities and financial proxies, the impacts of deadweight on SROI are not significant, because their  $\pm 10\%$  changes on SROI are all less than 1%. The sensitivity analysis results shown in Table 22 indicate that the minimum and maximum value of SROI caused by the uncertainties of deadweight is 11.42 and 11.55, respectively.

**Table 22. One-way Sensitivity Analysis of Deadweight**

Outcomes	Deadweight Range (-10% to +10%)	SROI Range	SROI Change Percentage
Program Attendees			
Improvement of diet quality	(16%, 20%)	(11.45, 11.52)	(-0.35%, 0.35%)
Increase of physical activity	(18%, 22%)	(11.45, 11.53)	(-0.35%, 0.35%)
Improvement of sleep quality	(13%, 16%)	(11.47, 11.50)	(-0.17%, 0.17%)
Improvement of mental health and sense of well-being	(16%, 20%)	(11.42, 11.55)	(-0.61%, 0.61%)
Increase of self-confidence	(19%, 23%)	(11.47, 11.51)	(-0.17%, 0.17%)
Improvement on the skills and strategy to maintain relationships	(18%, 22%)	(11.47, 11.50)	(-0.17%, 0.17%)

Attendees' Spouses			
Improvement of diet quality	(13%, 16%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of physical activity	(19%, 23%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement of mental health and sense of well-being	(13%, 16%)	(11.48, 11.49)	(-0.05%, 0.05%)
Seed Teachers			
Improvement of diet quality	(16%, 19%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of physical activity	(19%, 24%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of self-confidence	(21%, 26%)	(11.47, 11.50)	(-0.17%, 0.17%)
Have a sense of self-accomplishment	(19%, 23%)	(11.47, 11.49)	(-0.17%, 0.17%)
Increase involvement to participate in learning knowledge and acquiring skills	(19%, 24%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement on the skills and strategy to maintain relationships	(21%, 25%)	(11.47, 11.50)	(-0.17%, 0.17%)
Site Teachers			
Improvement of diet quality	(19%, 23%)	(11.49, 11.49)	± 0%
Increase of physical activity	(19%, 23%)	(11.49, 11.49)	± 0%

To see how the  $\pm 10\%$  changes of attribution affects the value of SROI, Table 23 summarizes the one-way sensitivity analysis results of attribution. Like the results of deadweight, the impacts of attribution on the value of SROI are all less than 1%. Among the attributions, the attribution of "Improvement of mental health and sense of well-being" has the greatest impact on SROI, where a 10% increase (from 13% to 14%) results in a 0.44% decrease (from 11.49 to 11.44) in SROI and a 10% decrease (from 13% to 12%) results in a 0.44% increase (from 11.49 to 11.53) in SROI. The attribution of "Increase of physical activity", "Improvement of diet quality", and "Improvement of sleep quality" are other important uncertain factors affecting the results of SROI, where the impacts of their  $\pm 10\%$  changes on SROI are  $\pm 0.26\%$ ,  $\pm 0.17\%$ , and  $\pm 0.17\%$ , respectively. The minimum and maximum value of SROI caused by the uncertainties of attribution is 11.44 and 11.53, respectively.

**Table 23. One-way Sensitivity Analysis of Attribution**

<b>Outcomes</b>	<b>Attribution Range (-10% to +10%)</b>	<b>SROI Range</b>	<b>SROI Change Percentage</b>
<b>Program Attendees</b>			
Improvement of diet quality	(9%, 11%)	(11.47, 11.50)	(-0.17%, 0.17%)
Increase of physical activity	(14%, 17%)	(11.46, 11.51)	(-0.26%, 0.26%)
Improvement of sleep quality	(12%, 15%)	(11.47, 11.50)	(-0.17%, 0.17%)
Improvement of mental health and sense of well-being	(12%, 14%)	(11.44, 11.53)	(-0.44%, 0.44%)
Increase of self-confidence	(11%, 13%)	(11.48, 11.50)	(-0.09%, 0.09%)
Improvement on the skills and strategy to maintain relationships	(11%, 13%)	(11.48, 11.50)	(-0.09%, 0.09%)
<b>Attendees' Spouses</b>			
Improvement of diet quality	(7%, 9%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of physical activity	(9%, 11%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement of mental health and sense of well-being	(11%, 13%)	(11.48, 11.49)	(-0.05%, 0.05%)
<b>Seed Teachers</b>			
Improvement of diet quality	(10%, 13%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of physical activity	(16%, 20%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of self-confidence	(17%, 20%)	(11.48, 11.50)	(-0.09%, 0.09%)
Have a sense of self-accomplishment	(19%, 24%)	(11.47, 11.50)	(-0.09%, 0.09%)
Increase involvement to participate in learning knowledge and acquiring skills	(21%, 26%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement on the skills and strategy to maintain relationships	(21%, 25%)	(11.47, 11.50)	(-0.09%, 0.09%)
<b>Site Teachers</b>			
Improvement of diet quality	(6%, 8%)	(11.49, 11.49)	± 0%
Increase of physical activity	(8%, 10%)	(11.49, 11.49)	± 0%

The one-way sensitivity analysis results of drop off are shown in Table 24, where we can see the ranges of SROI caused by  $\pm 10\%$  changes in drop off. For example, while a 10% increase (from 10% to 11%) in the drop-off rate of “Improvement of diet quality” results in a 0.26% decrease (from 11.49 to 11.46) in SROI, a 10% decrease (from 10% to 9%) in the drop-off rate of “Improvement of diet quality” results in a 0.26% increase (from 11.49 to 11.52) in SROI. Like the sensitivity analysis results of attribution, the most important drop-off rates affecting the results of SROI are the ones of “Improvement of mental health and sense of well-being”, “Increase of physical activity”, “Improvement of diet quality”, and “Improvement of sleep quality.” The impacts of their  $\pm 10\%$  changes on SROI are  $\pm 0.70\%$ ,  $\pm 0.44\%$ ,  $\pm 0.26\%$ , and  $\pm 0.26\%$ , respectively. The impacts of drop-off rates on SROI are not significant, because the impacts of their  $\pm 10\%$  changes on SROI are all less than 1%. The minimum and maximum value of SROI caused by the uncertainties of drop off is 11.41 and 11.57, respectively.

**Table 24. One-way Sensitivity Analysis of Drop Off**

Outcomes	Drop Off Range (-10% to +10%)	SROI Range	SROI Change Percentage
Program Attendees			
Improvement of diet quality	(9%, 11%)	(11.46, 11.52)	(-0.26%, 0.26%)
Increase of physical activity	(14%, 17%)	(11.44, 11.53)	(-0.44%, 0.44%)
Improvement of sleep quality	(13%, 15%)	(11.46, 11.51)	(-0.26%, 0.26%)
Improvement of mental health and sense of well-being	(12%, 14%)	(11.41, 11.57)	(-0.70%, 0.70%)
Increase of self-confidence	(11%, 13%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement on the skills and strategy to maintain relationships	(11%, 13%)	(11.48, 11.49)	(-0.05%, 0.05%)
Attendees’ Spouses			
Improvement of diet quality	(6%, 8%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of physical activity	(1.8%, 2.2%)	(11.49, 11.49)	$\pm 0\%$
Improvement of mental health and sense of well-being	(7%, 9%)	(11.48, 11.49)	(-0.05%, 0.05%)
Seed Teachers			
Improvement of diet quality	(7%, 9%)	(11.48, 11.49)	$\pm 0\%$
Increase of physical activity	(8%, 10%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase of self-confidence	(2.7%, 3.3%)	(11.48, 11.49)	(-0.05%, 0.05%)

Have a sense of self-accomplishment	(6%, 8%)	(11.48, 11.49)	(-0.05%, 0.05%)
Increase involvement to participate in learning knowledge and acquiring skills	(5%, 7%)	(11.48, 11.49)	(-0.05%, 0.05%)
Improvement on the skills and strategy to maintain relationships	(2.7%, 3.3%)	(11.48, 11.49)	(-0.05%, 0.05%)
Site Teachers			
Improvement of diet quality	(6%, 8%)	(11.49, 11.49)	± 0%
Increase of physical activity	(15%, 19%)	(11.49, 11.49)	± 0%

#### 7.4 Limitations and Risk Management

There are still some limitations that should be taken into consideration, even we follow the seven SROI principles during the whole evaluation processes to create a consistent and credible account for the value that is being created or destroyed by the SEP. Regarding the principle of “involving stakeholders”, a major limitation is that we were unable to engage directly to all stakeholders, especially the attendees’ spouses. The potential risks are insufficient representation of stakeholders and underestimating SROI. To overcome such challenges, we applied random sampling approach during the interview process of the mapping outcomes stage to ensure that each stakeholder has an equal probability of being chosen. At least 3% of the population were interviewed to make sure sample of the corresponding population is representative. Accordingly, 6.8%, 3.7%, 18.6%, 66.7% of program attendees, attendees’ spouses, seed teachers, and site teachers were interviewed, respectively. For the questionnaire process, we conducted small-scale pre-test to ensure the reliability and validity of the questionnaire. Then we distributed the questionnaires to all stakeholders if we had their contacts. With the help from the YSF, the response rates for program attendees, attendees’ spouses, seed teachers, and site teachers are 100%, 25.3%, 38.1%, and 100%, respectively. While a survey response rate of 50% or higher should be considered excellent, response rates in the 5% to 30% range are more far typical.

Regarding the principle of “understanding the changes”, a major challenge is that program attendees are elderly people over 60 and some of them might not be able to express the impact or change or they are unaware of whether the changes happened or not because of SEP. The corresponding risk is the possibility of overestimating or underestimating SROI. To overcome such challenges, we provide trainings for our investigators and the staff of the YSF to learn the techniques of interview and the details of questionnaires. Our investigators also learnt from the staff of the YSF for the techniques of involving the elderly. We also provided phones and emails for the stakeholders if they had questions when they filled out the questionnaires. Hence, some of the questionnaires were conducted by phone because some elderly had difficulties understanding questions. Besides, the questionnaires were designed based on the literature review and the questions that have been used by the YSF for years because they have the theory behind the change they are affecting through their activities. In addition, the risk of significant different

experiences within the group is minimal, because generally less than 5% of each stakeholder group experienced negative changes, according to the descriptive statistics from Table 9 to Table 12. Such changes were also considered in the statistics of “Amount of change per stakeholder” by the approach of distance travelled.

Regarding the principle of “valuing the things that matter”, a major challenge is still about the comprehension of the elderly attendees. Some of them might have difficulties understanding how to value the outcomes. The corresponding risk is the possibility of overestimating or underestimating SROI. Hence, we provided phones and emails for the stakeholders if they have difficulties pricing the outcomes. Some of the pricing results were conducted by phone interviews as well. In addition, the relative importance of outcomes is compared with the corresponding valuation evaluated by each stakeholder in Table 25. The comparison results show that the valuation generally reflects the relative importance of different outcomes to particular stakeholders.

**Table 25. Comparisons between Relative Importance and Valuation**

Outcomes of Program Attendees	Relative Importance (Scale 1-10)	Valuation (In NT\$)
Improvement of diet quality	8	10,800
Increase of physical activity	8	11,200
Improvement of sleep quality	6	8,000
Improvement of mental health and sense of well-being	9	13,200
Increase of self-confidence	6	8,750
Improvement on the skills and strategy to maintain relationships	6	8,000
Outcomes of Attendees’ Spouses	Relative Importance (Scale 1-10)	Valuation (In NT\$)
Improvement of diet quality	8	4,800
Increase of physical activity	9	5,660
Improvement of mental health and sense of well-being	9	5,800
Outcomes of Seed Teachers	Relative Importance (Scale 1-10)	Valuation (In NT\$)
Improvement of diet quality	6	3,450
Increase of physical activity	6	3,450
Increase of self-confidence	9	12,000
Have a sense of self-accomplishment	9	12,400
Increased involvement in learning knowledge and acquiring skills	7	9,640
Improvement on the skills and strategy to maintain relationships	9	13,200
Outcomes of Site Teachers	Relative Importance (Scale 1-10)	Valuation (In NT\$)
Improvement of diet quality	8	3,450
Increase of physical activity	8	3,450

Regarding the principle of “only including what is material”, we have discussed how we determined what information and evidence must be included in the accounts to give a true and fair picture in Section 5.3.

Regarding the principle of “not over-claiming”, a major challenge is the variability of the duration year. Our stakeholders were overall optimistic about how long these changes will last. Some attendees even believed these changes will be lifetime long because they formed the habit already. We applied the average as the measure of central tendency for duration. Even though our results about duration years are generally consistent with the related studies in Taiwan, we set the duration to at most 5 years to avoid over-claiming. One-way sensitivity analysis was also conducted to assess how the changes in outcome quantities, financial proxies, deadweight, attribution, and drop-off will affect the SROI number.

Regarding the principle of “being transparent”, we have good communication with the YSF and the SEP’s stakeholders during the whole accounting process. We kept tracking and communicating the methodologies used to determine metrics, data collections, and analysis approaches. We had regular meetings with the YSF and even held workshops for their staff and stakeholders to help them understand the methodology we used.

Finally, regarding the principle of “verifying the result”, we conducted final round of stakeholder engagement after analyzing the quantitative survey data to verify the survey results, confirm financial proxies for each outcome and clarify findings that were inconsistent with the initial interview as described earlier in Section 3.3. The method we used was face-to-face (to older adult attendees) and phone (to spouses, seed teachers and site teachers) interview with randomly selected samples from each stakeholder groups. The verification results from all stakeholder groups were directionally in-lined with survey finding. Overall, the program attendees’ verification results are more optimistic than the survey findings, probably due to face-to-face engagement. Since there are no contradicting findings, we remained using quantitative survey data for analysis.

## Chapter 8: Stage 6 – Reporting, Using and Embedding

In this chapter, we will present the analysis on the outcomes, conclude our findings, and then provide recommendations for the future study and program enhancement.

### 8.1 Value Analysis

Based on the results of calculated SROI values in Table 19, we draw a pie chart of value contribution by stakeholder groups shown in Figure 8. As we can see that most (74%) of the outcome value is generated from the stakeholder group of program attendees, which is consistent with the expectation of the SEP. The values from seed teachers, attendees' spouses, and site teachers account for 15.8%, 10.1%, and 0.1% of the total value, respectively. The value from site teachers is small because there are only 9 persons in that group.

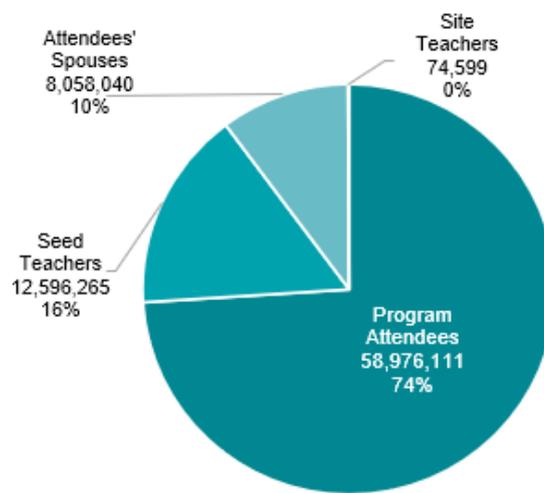
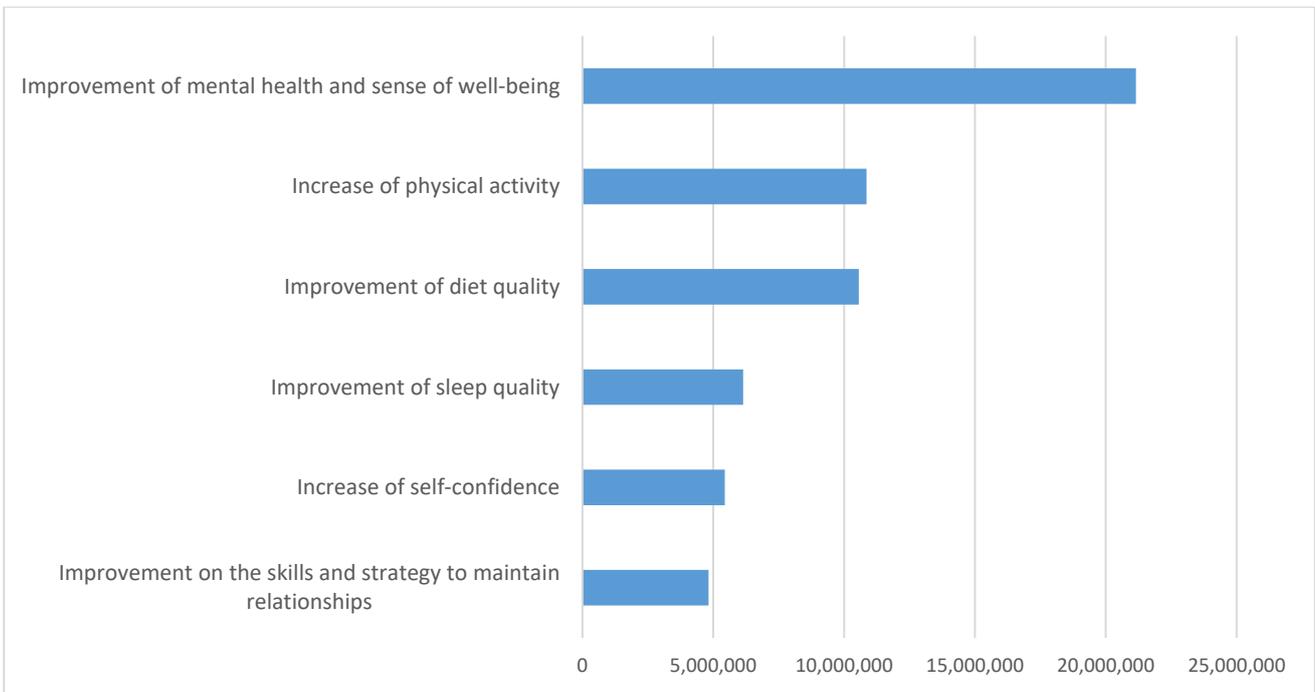


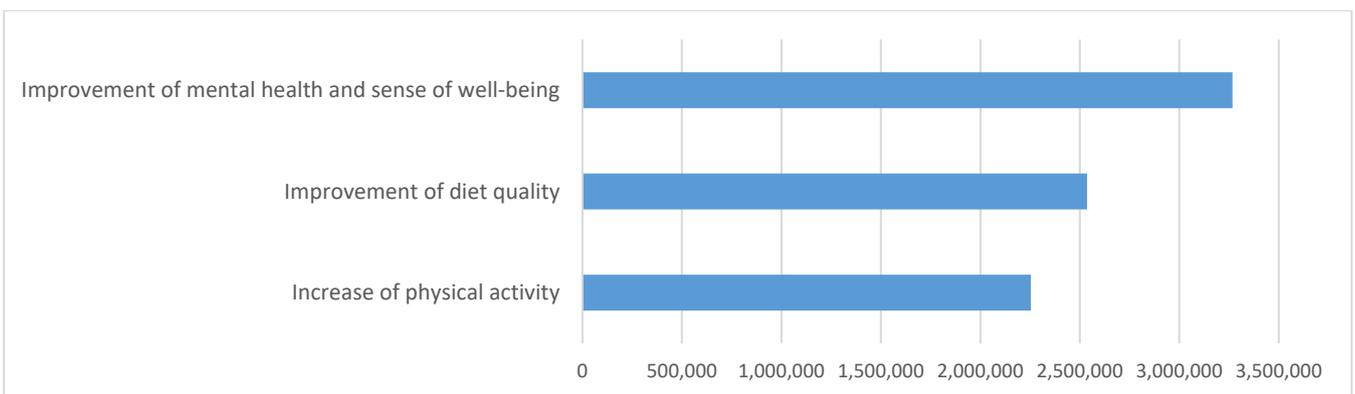
Figure 8. Pie Chart of Value Contribution by Stakeholder Groups

Within the stakeholder group of program attendees, the ranking of outcome values and its corresponding values is depicted in Figure 9. The outcome of “Improvement of mental health and sense of well-being” generated the highest value, because it has the greatest number of people experiencing the change. During the engagement process, the most often recorded verbatim are that “I am happier now” or “I feel more pleasant”. Meanwhile, the accumulated values generated by the outcomes of “Increase of physical activity” and “Improvement of diet quality” are NT\$10,855,975 and NT\$10,563,049, respectively. The top three outcomes account for 72% of the value in the stakeholder group of program attendees. Hence, we should take care of the activities that could lead to these outcomes.



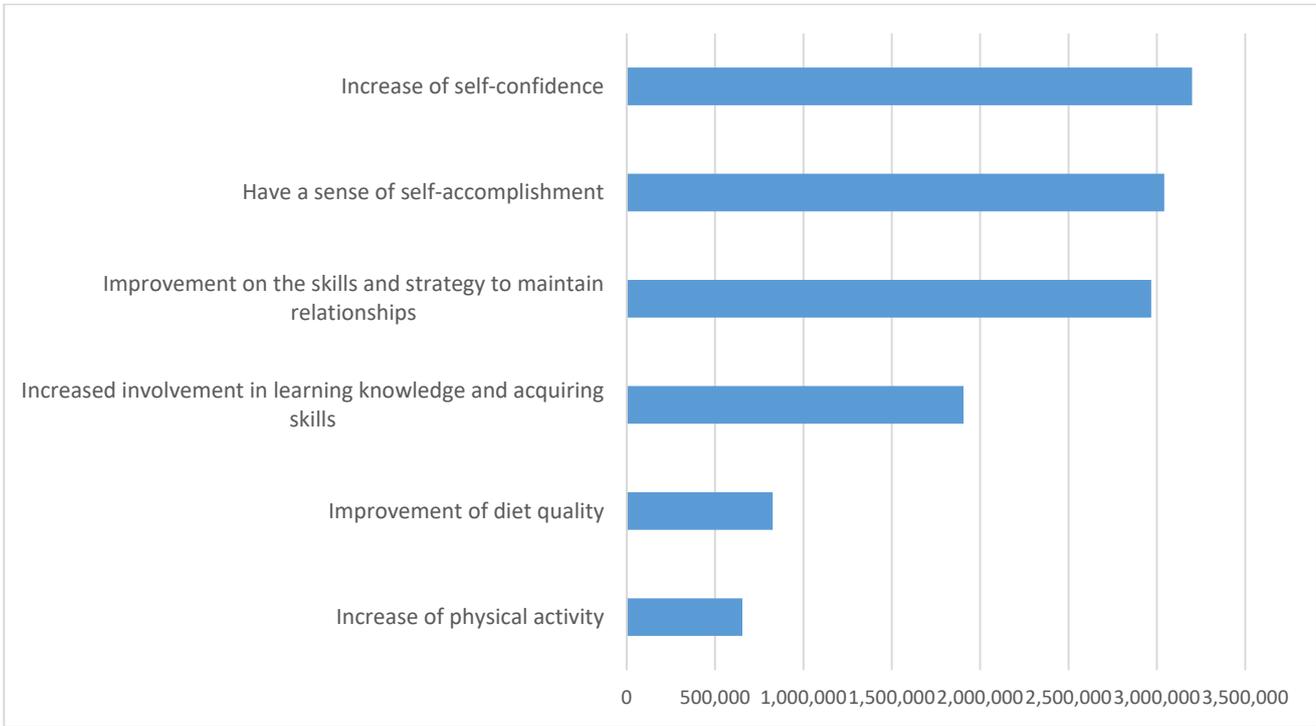
**Figure 9. Ranking of Outcome Values from Program Attendees**

The ranking of outcome values from the stakeholder group of attendees’ spouses is illustrated in Figure 10. Same as program attendees, mental health and sense of well-being generated the highest amount of social value, followed by diet quality improvement and physical activity increase. It indicates that the improvement of mental health and sense of well-being of the program attendees can also lead to similar improvement of attendees’ spouses. Hence, the YSF should investigate the activities that lead to the outcome of “improvement of mental health and welling.”



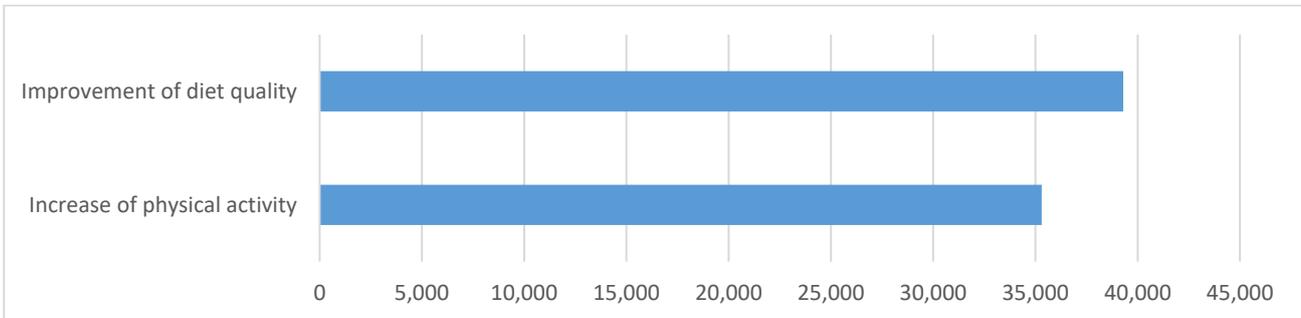
**Figure 10. Ranking of Outcome Values from Attendees’ Spouses**

Regarding the stakeholder group of seed teachers, its ranking of outcome values and corresponding values is illustrated in Figure 11. The top three outcomes that generate the greatest value are “Improvement of self-confidence”, “Have a sense of self-accomplishment”, and “Improvement on the skills and strategy to maintain relationships”. The corresponding values are NT\$3,199,235, NT\$3,041,543, and NT\$2,968,326, respectively. Hence, the YSF should consider how to improve the related activities to increase the quantities of people experienced the changes of the top three outcomes.



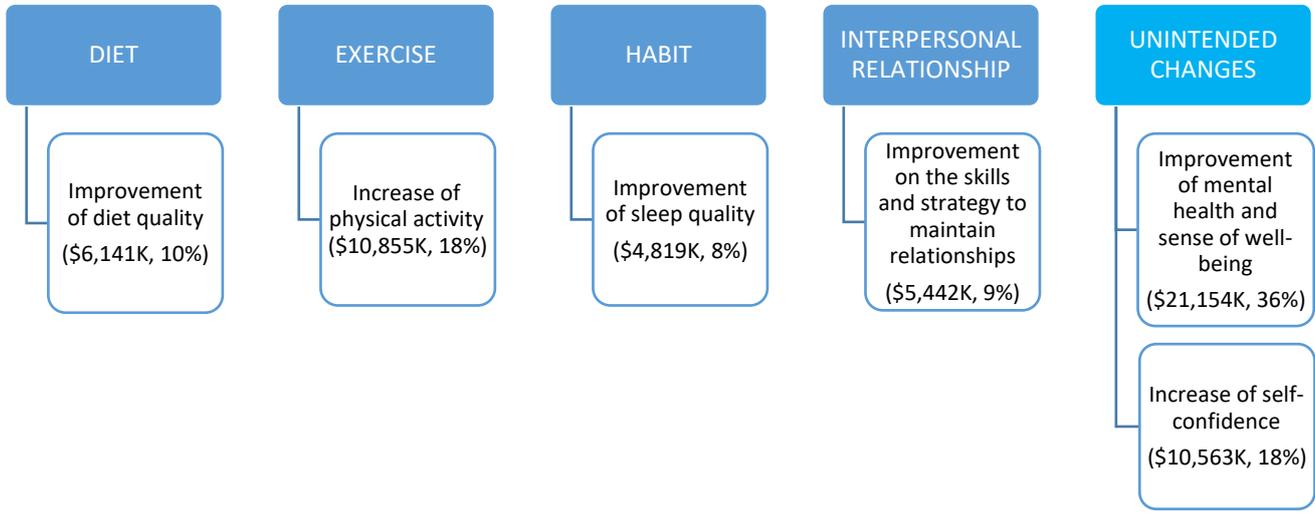
**Figure 11. Ranking of Outcome Values from Seed Teachers**

The ranking of outcome values from the stakeholder group of site teachers is illustrated in Figure 12. The values generated by the outcomes of “Increase of physical activity” and “Improvement of diet quality” are NT\$39,293 and NT\$35,306, respectively. Comparing to the other stakeholder groups, the values from site teachers are relatively low.



**Figure 12. Ranking of Outcome Values from Site Teachers**

In SEP, older adults’ self-health management is achieved from the “3+1” dimensions – diet, exercise, habit, and interpersonal relationship. As the SEP is designed for the program attendees and seed teachers, we further investigate whether the outcome values from both stakeholder groups meet the objectives of SEP. The outcome values of the program attendees against the intended objectives of SEP are compared in Figure 13. The objectives of diet, exercise, habit, and interpersonal relationship have related outcomes on “Improvement of diet quality”, “Increase of physical activity”, “Improvement of sleep quality”, and “Improvement on the skills and strategy to maintain relationship”, respectively. The unintended changes are “Improvement of mental health and sense of well-being” and “Increase of self-confidence”, which account for 54% of the value from the program attendees. Hence, the YSF can consider whether to add a dimension related to mental health or to allocate more resources to improve the values from the intended objectives – diet, exercise, habit, and interpersonal relationship.



**Figure 13. Outcome Value of the Program Attendees against SEP’s Intended Objectives**

Meanwhile, the outcome value of the seed teachers against SEP’s intended objectives is depicted in Figure 14. The objectives of diet, exercise, and interpersonal relationship have related outcomes on “Improvement of diet quality”, “Increase of physical activity”, and “Improvement on the skills and strategy to maintain relationship”, respectively. The unintended changes are “Improvement of self-accomplishment”, “Increase of self-confidence”, and “Increase involvement in learning knowledge and acquiring skills”, which account for 64% of the value from the stakeholder group of seed teachers. Hence, the YSF can consider whether to add one or more dimensions related to these unintended changes or to allocate more resources to improve the values from the intended objectives – diet, exercise, and interpersonal relationship.

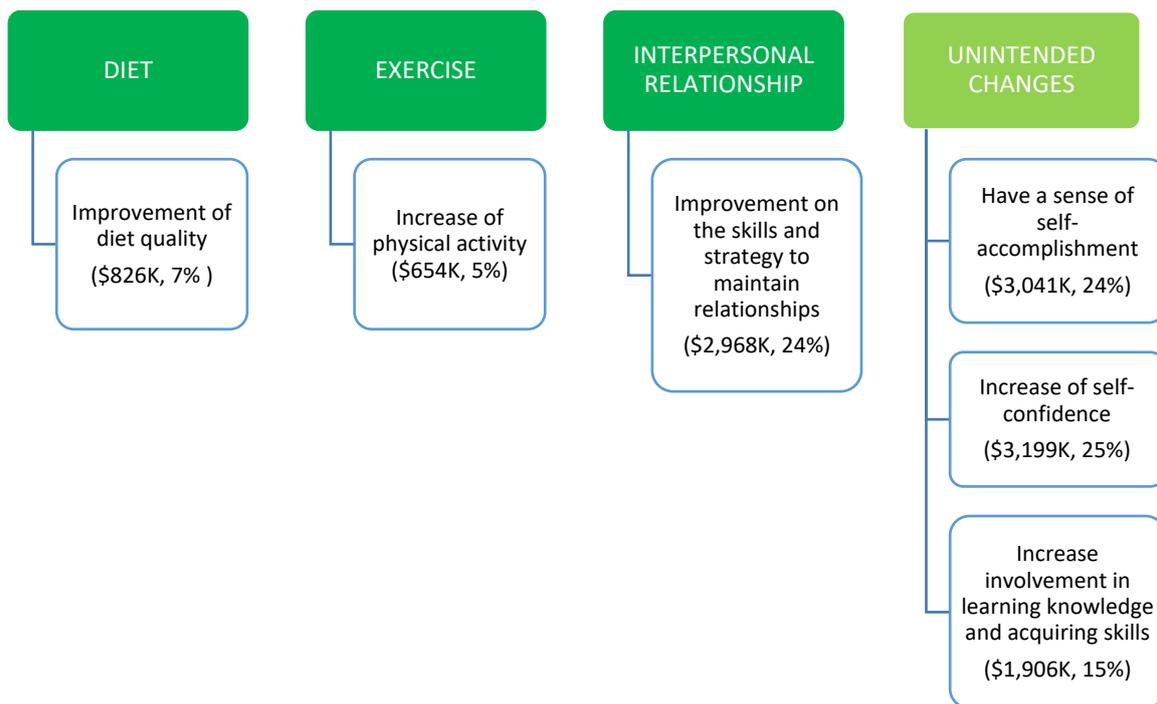


Figure 14. Outcome Values of the Seed Teachers against SEP's Intended Objectives

## 8.2 Conclusion

By undertaking the SROI study, we take a stakeholder-based approach to assess the social impacts generated by SEP. Study result shows that during the study period, the SEP has:

- Generated NT\$11.49 social value for every NT\$1 invested
- Created all the intended and positive outcomes that SEP targeted to achieve around the planned 3+1 dimensions – diet, exercise, habit, and interpersonal relationship plus several unintended positive changes that are highly valued by the stakeholders
- 74% of the social value came from the stakeholder group of program attendees, and 16% came from the seed teachers. This shows that SEP delivered its objectives and effectively influenced program attendees' behaviors and circumstances on health self-management
- 10% of the social value was generated from two unintended stakeholder groups, i.e., attendees' spouses and site teachers and they are positively impacted as well
- No negative outcome was identified or materialized

There are several key success factors that we identified during the stakeholder engagement process:

### 1. Program contents encompass the key elements of successful ageing

According to the book by Rowe & Kahn (1998) [23], it's suggested that successful ageing is multidimensional, encompassing the avoidance of disease and disability, the maintenance of high physical and cognitive function, and sustained engagement in social and productive activities.

From physical health perspective, nutritionally balanced diet and regular exercise are preventive measures to reduce the risks of chronic illness and disability. From mental health perspective, good lifestyle habit and having control over physical health independently provides sense of self-esteem and feeling content for life. From social perspective, having access to people interaction, companionship and voluntary services ensures social involvement. The SEP content incorporates all these elements.

### 2. Content delivery was well-designed and fitting older adults' learning behavior thus ensuring easy adoption

Learning new knowledge can be challenging for older adults, not to mention putting it into daily practice. The SEP developers and instructors managed to design the delivery mechanism using a fun, easy and approachable way. For example, during stakeholder engagement process, the program attendees and seed teachers can easily call out mnemonic phrases, and they know what and how much to eat by referring to the plate shown in the textbook.

YSF also recognized the challenge to cultivate behavioral change, so starting from 2<sup>nd</sup> stage, it is required to complete daily "homework". YSF designed an instruction guidebook and an 8-week daily practice booklet with daily practice assignment and distributed to 2<sup>nd</sup> stage program attendees. This is a critical mechanism in cultivating habit.

### 3. Heart-felt genuine warmth from program staffs that encouraged behavioral change

During stakeholder engagement process, the program attendees expressed appreciation for YSF program staffs. Some of them mentioned that they practiced what they learnt as a token of appreciation to the hard effort made by the program staffs. The genuine warmth and care from the program staffs are deeply cherished which they believed cannot be found elsewhere.

## 8.3 Recommendations

To be useful, the SROI analysis needs to result in change. Therefore, this SROI study is just a beginning for the YSF. We hope by presenting this analysis, it will help the YSF gain further understanding into the social impact it has created and how the different aspects of stakeholders' lives were being impacted. Moving forward, we would like to propose some recommendations to further this value creation journey:

#### 1. Administer pre- and post-program tracking to obtain objective measures on levels of change

While SROI method is based on stakeholders' subjective feedback on changes resulted from an intervention, we recommend rolling out pre- and post-program assessment embedding quantitative measures to enhance the value estimation. This will also provide concrete data to compare against national tracking statistic data. YSF has been engaged by Ministry of Health and has an influential role to play by incorporating much of the SEP in the government policy making as well as expanding from community levels into island wide.

For example, in 2015 Taiwan Longitudinal Study on Aging [24], the WHO-5 well-being index was adopted to evaluate mental well-being status. It asks respondents the mental status within the past two weeks. If YSF adopts this survey before and after program attendance, it will have precise data on the level of improvement on this outcome. YSF can also compare its attendees' data against the national data to gain further insight into the effectiveness of SEP in this regard.

## 2. Extending program value

From sensitivity analysis we see the most important factors affecting the SROI. We also see which outcomes generate the most values of the SEP from the outcome value analysis. The YSF should consider how to improve the activities that could lead to these outcomes or factors. During stakeholder engagement, some of the 3<sup>rd</sup> stage graduates mentioned that they wish to continue learning with YSF. We recommend YSF to develop some type of continuity program to extend the duration. For example, a refreshment camp.

## 8.4 Final words

Flashbacking to the first time we engaged with the stakeholders, it is the initial interview with the group of seed teachers who had left a deep impression on every member in the study team. When they talked about how their lives were like before and after becoming seed teachers, their eyes were shining with enthusiasm and their body languages exuded confidence. They cheerfully mentioned how they left the passive lives behind, and now regained confidence to going forward. Later, when we interviewed the program attendees, we witnessed similar positivity and energy. Many older adults told us they were so grateful to YSF for developing the SEP. The appreciation was beyond words can describe. Thus, we were convinced that the SEP has not only brought meaningful changes to its stakeholders' lives but can potentially be the hope of all older adults in our society, including myself and my loved ones. Thank you YSF, for giving me the honor to work on this study and finding the beam of light ahead.

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## APPENDIX

Appendix 1. Stakeholder Interview Questions

Appendix 2. Quantitative Survey Questionnaire

## APPENDIX 1. STAKEHOLDER INTERVIEW QUESTIONS

### A. Opening

- Self-introduction
- Just state your personal experience, there is no right or wrong

### B. Background

- Demographics: gender, age, job status
- When did you enroll in the program? How many times participated so far?
- How did you know about the program?
- Why did you want to enroll in the program?
- Have you participated in other similar programs?
- Will you be interested in participating other self-healing enhancement related activities in the future?

### C. Outcomes

- What change have you experienced because of your participation in the SEP?
- Please describe the change that you had experienced in a little more detail (how do you know it had happened, when, how etc.)
- What is the subsequent change that had happened because of this change? Please describe how one linked to another (Continue probing along the chain until exhaust the answers)
- (Repeat above questions, keep asking until exhaust all change)
- Please rank above changes in order of importance to you
- How long did/will the changes last?
- If you had not attended the program, what is the likelihood of experiencing these changes?
- Are there any other factors caused these changes as well?
- Have you experienced any negative change because of your participation in the SEP?
- Please describe the change that you had experienced in a little more detail (how do you know it had happened, when, how etc.)
- What is the subsequent change that had happened because of this change? Please describe how one linked to another (Continue probing along the chain until exhaust the answers)
- Are there any other things you would like to share?

## APPENDIX 2. SURVEY QUESTIONNAIRE

### I. Stakeholder: PROGRAM ATTENDEES

A. Diet as example (Basic demographic questions are not included here)

Question	Scale
1. Change in the average daily protein intake volume	Binary: Yes/No
1a. Daily protein intake volume* before attending SEP 1b. Daily protein intake volume* before attending SEP (volume measurement: 1 volume = 1 feast size)	Open-end
2. Change in the average daily vegetable intake volume	Binary: Yes/No
2a. Daily vegetable intake volume* before attending SEP 2b. Daily vegetable intake volume* before attending SEP (volume measurement: 1 volume = 1 feast size)	Open-end
3. Change in the average daily protein intake volume	Binary: Yes/No
3a. Daily protein intake volume* before attending SEP 3b. Daily protein intake volume* before attending SEP (volume measurement: 1 volume = 1 feast size)	Open-end
4. Compare before and after attending SEP, self-assess own diet quality in terms of meeting nutritionally balanced criteria* ( <i>*Nutritionally balanced diet refers to eating six food categories in every meal, including grains, proteins, vegetables, fruits, dairy products and nuts or seeds</i> )	5-point scale <i>(much worse – much better)</i>
Q4 tick 4-5 continue answering; tick 1- 3 go to section B	
5. How long foresee the change will last	Open-end
6. Likelihood of the change diminishing over time	5-point scale <i>(Definitely not – Definitely yes)</i>
7. Had you not attended SEP, the likelihood of diet quality still becoming nutritionally balanced anyway?	5-point scale <i>(Definitely not – Definitely yes)</i>

8. Likelihood of any other organizations or participated activities also cause this change?	Binary: Yes/No
8a. If yes, estimate proportion (0%-100%) contributed by other activities or organization altogether (total change as 100%, other activities and/or organizations consolidated)	Open-end
Please rank the importance of the changes to the organization. (10 being the most important,1 being the least important)	

B. Mental health and sense of well-being, referenced questions from WHO-5 well-being index survey

<https://www.psykiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>

C. Self-confidence, adopted questions from Rosenberg Self-esteem Scale

<https://wnorton.com/college/psych/psychsci/media/rosenberg.htm>

## **II. Stakeholder: ATTENDEES' SPOUSES**

Directly adopted program attendees' questionnaire per applicable outcomes.

## **III. Stakeholder: SEED TEACHERS**

E. Sense of self-accomplishment, referenced questions from Meaning of Life Survey.

[http://www.michaelfsteger.com/?page\\_id=13](http://www.michaelfsteger.com/?page_id=13)

Outcome	1a. Before becoming a seed teacher	5-point scale <i>(strongly disagree – strongly agree)</i>
	<ul style="list-style-type: none"> <li>• I have a good sense of what makes my life meaningful</li> <li>• I have discovered a satisfying life purpose</li> </ul>	
	1b. After becoming a seed teacher	
	<ul style="list-style-type: none"> <li>• I have a good sense of what makes my life meaningful</li> <li>• I have discovered a satisfying life purpose</li> </ul>	
	2. Compare before and after becoming seed teacher, whether experienced an increase in a sense of self-accomplishment	Binary: Yes/No
Duration	3. How long foresee the change will last	Open-end

Drop-off	4. Likelihood of the change diminishing over time	5-point scale <i>(Definitely not – Definitely yes)</i>
Deadweight	5. Had you not become a seed teacher, the likelihood of still obtaining a sense of self-accomplishment anyway?	5-point scale <i>(Definitely not – Definitely yes)</i>
Attribution	6. Likelihood of any other organizations or participated activities also cause this change?	Binary: Yes/No
	6a. If yes, estimate proportion (0%-100%) contributed by other activities or organization altogether (total change as 100%, other activities and/or organizations consolidated)	Open-end

#### **IV. Stakeholder: SITE TEACHERS**

Directly adopted seed teachers' questionnaire. Only adding negative question.

##### F. Negative change

Type	Question	Answer
Outcome	1. Change in frequency of experiencing negative emotions (including stress, frustration, demotivation etc.) because of facilitating SEP?	5-point scale <i>(greatly decreased – greatly increased)</i>
Duration	2. How long foresee the change will last	Open-end
Drop-off	3. Likelihood of the change diminishing over time	5-point scale <i>(Definitely not – Definitely yes)</i>
Deadweight	4. Had you not become a site teacher, the likelihood of still increasing frequency of negative emotions anyway?	5-point scale <i>(Definitely not – Definitely yes)</i>
Attribution	5. Likelihood of any other organizations or participated activities also cause this change?	Binary: Yes/No
	5a. If yes, estimate proportion (0%-100%) contributed by other activities or organization altogether (total change as 100%, other activities and/or organizations consolidated)	Open-end