A Story Approach for Monitoring Change: Evaluating a Community Based Environmental Education Program for Sustainability

Social Research Project for Living Smart

This social research project has been produced for the Living Smart organisation, to evaluate the durability of their course to facilitate long-term behavioural change and to see if there is a broader flow on effect into the community and from one generation to another.

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Semester 2, 2017

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List of Abbreviations

EPA - Environmental Protection Authority

LS – Living Smart

PSR – Performance Story Reporting

RRRC – Regional Resource Recovery Centre

Executive Summary

Threats to the environment as well as climate change are having a profound effect globally. These threats have seen a multi-disciplinary approach to solutions towards sustainability such as the Living Smart (LS) course, a sustainability education program aimed at teaching sustainable living practices through behaviour change.

The LS program was developed in 2002-3 with the vision to create sustainable communities through increased awareness of sustainability and ecological issues, shared actions to protect the environment, and reinforcing sustainability behaviour change. The course enables participants to develop a deeper understanding of sustainability topics and empowers them with practical skills which motivate and provide the catalyst for ongoing behaviour changes.

The social research project objective was to gather evidence and evaluate whether the LS course is a catalyst for encouraging lasting sustainability behaviour changes. The Performance Story Reporting method (from Evidence Gathering to Expert Panel review) has been used as a guide to measure the effectiveness and validate the significance of the program. This report will concentrate on the lasting behaviours, by identifying the nature and quality of these behaviours, with questions focused on the following points:

- Does the changed behaviour last?
- Does this behaviour continue 1 or 2 years from the end of course?
- What does the change look like? / How does the changed behaviour manifest?
- What are the barriers to pursuing their sustainability?
- What has helped in their pursuit of living a sustainable life?

Through the evidence gathering, sixty-four past participants were interviewed to capture stories about their sustainability journey after completing the LS course. The results were analysed and showed significant evidence that past participants have maintained a number of sustainability habits they developed through the course.

Participants' ongoing sustainability behaviour change was not only successful; it proliferated from one area of sustainability to another. Two-thirds of the participants consider that one behaviour change led to further pro-environmental actions over time. The review of results from the Expert Panel gave valuable feedback on confidence in these findings and ways to improve their accuracy and avoid bias. Overall this research has shown that the LS course has directly impacted on participant's lifestyles, and has provided the catalyst to encourage them to live more sustainably.

Acknowledgements

This research was supported by Be Living Smart Inc., in particular, Stephanie Jennings and Grant Gernhoefer, who oversaw the requirements for Living Smart, provided the program logic, participant information and interview questions. Also the Living Smart facilitators; Tim Darby, Shani Graham, Lindsay Miles, Glen McLeod-Thorpe, Jane Genovese, Pamela Forward, Emma Jack and Laura Bailey, for their detailed provision of course reports as a useful source of secondary data and making initial contact with potential survey participants.

This work would not have been possible without the support of the Murdoch University. I am especially indebted to my Academic Supervisor, Hana Jestribek and the Unit Coordinator, Allan Johnstone who worked actively to provide me with the support and guidance I needed with this project. And Senior Lecturer, Martin Brueckner, who provided the opportunity to work on this social research project with Living Smart.

I am grateful to all of those with whom I have had the pleasure to work with during the first part of this project; Joanne Wardle, Lauren Rickert and Dhruvisha Gosai. Each of these team members of my Internship group has provided me with support and guidance during the scoping, evidence gathering and integrated data analysis stages.

I am appreciative of the Expert Panel members and contributors; Bruce Hegge, Catherine Baudains, Christy Spier, Clare-Francis Craig, Colin Ashton Graham and Jayne Bryant. With special thanks to Colin Campbell who was the Facilitator of the Expert Panel Meeting as he kept us on track and on time. It was a very productive process with their input and thoughts being a valuable consideration of the research.

Enormous thanks to my partner, Johan Neser who has been a part of my research conversations and my sounding board for almost a year.

Last but not least I thank all the Living Smart participants who provided their time with answering the survey questions and shared their sustainability journey in the process.

"Never doubt that a small group of thoughtful committed citizens can change the world; indeed, it's the only thing that ever has." ~ ***Margaret Mead***

Introduction

Australia is vulnerable to the effects of climate change. It is already the driest continent, exposed to the dangers of extreme heat and drought. Our population mostly dwells on the coastline, making rising sea levels a concern. It is home to important and vulnerable ecosystems.

Human actions have a huge impact on the earth's ecosystems, and knowledge is only one factor in making changes, therefore the key to Australia's sustainable future lies in our attitudes towards the environment. Positive change can be achieved when people see options for improvement in their quality of life and opportunities for their children and grandchildren (State of the Environment 2001). With the assistance of education for sustainability, people become not only aware of but also concerned about the environment and its associated problems.

Education for sustainability is thought of as a process, rather than a presentation, challenging the unsustainable way in which human society currently exists, and facilitates change by:

- working in conjunction with and complementing other approaches
- building capacity in individuals and organisations for transformational change
- fostering new knowledge
- fostering new behaviours, systems and practices, and
- emphasising creative, critical and innovative approaches (ARIES 2017).

It is concerned with knowledge, feelings, attitudes, skills, and socialisation and encompasses education in, for, and about the environment, ideally a combination of all three. A transformation to a sustainable society must involve transformations in many areas including sociology, politics (institutional and general), economics, nature, and critical thinking (Greenall Gough 1992). This change is accelerated when public awareness is translated into political action that influences the activities of our society to care for our country (State of the Environment 2001).

Living Smart Background

The LS Program is a community based education program for sustainability that aims to increase awareness of sustainability issues and to provide the community with the knowledge and skills to take action to improve the sustainability of their lifestyle in their home and flow through to their neighbourhood.

The LS program facilitates behaviour change through goal setting, social diffusion and social norms. Goals are more likely to be achieved when associated with implementation intentions – when individuals are interested in engaging in an action, having them indicate when they plan to engage in the action increases the likelihood of positive changes (McKenzie- Mohr and Shultz 2012).

The program has been successful due to its collaborative learning style, facilitating behaviour change through interactive workshops, environmental awareness, exposure to sustainability projects and community groups in a relaxed environment. This type of public participation empowers people to make, maintain and sustain changes, as shown in Figure 1 below (International Association for Public Participation).

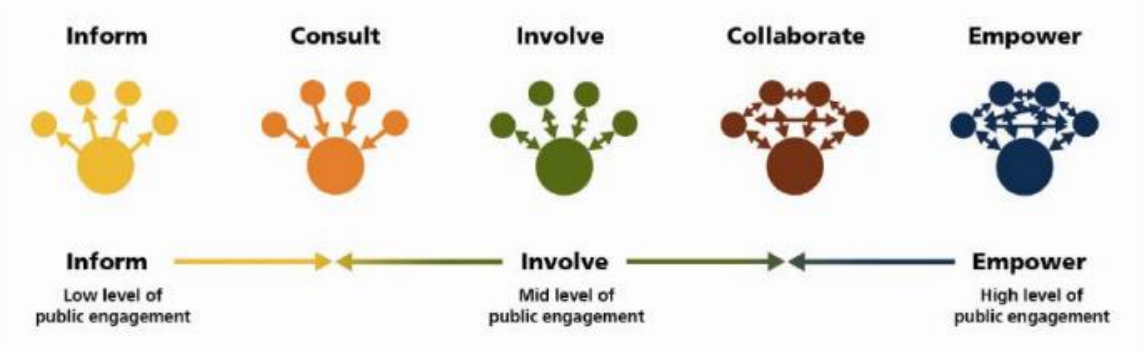

Figure 1: IAP2 Best Practice Standard for Public Participation

LS have collected information through course evaluations, conducted at the start of a course and immediately at the end. These questions cover demographics, opinions on goal-setting and scales used to assess environmental knowledge, as well as attitudes and behaviour. This has shown change does occur across the topics during the course; however this project is interested in observing if the participants are continuing with their sustainable practices over a long period of time.

Long-term follow-up assessment is an important aspect in evaluating maintenance of a coursework effect (Klesges, Estabrooks, Dzewaltowski, Bull, & Glasgow 2005). The LS organisation wanted to evaluate the durability of their course to facilitate long-term behavioural change and to see if there is a broader flow on effect into the community or from one generation to another.

Living Smart Vision Statement

Create sustainable communities through:

- increased awareness of sustainability and ecological issues,
- shared actions to protect the environment, and
- reinforcing sustainable behaviour change.

Murdoch University Students

The LS course was offered as a University unit during the summer semester. Following on from the unit, four students who completed the course were interested in continuing their experience with LS, through communicating with the wider community about sustainable lifestyle changes to further motivate them to continue with their sustainable journey. The experience of taking on an internship with LS would develop skills for future employment; such as teamwork, analysing data, planning and conducting research, liaising with the community and stakeholders, communication and organisational skills.

In order to complete the LS course evaluation, it was agreed that four Murdoch University students would form a team as they were all interested in the same intern project: to gather information and analyse data on behalf of the LS organisation to assist them with evaluation of their course. The team consists of Joanne Wardle, who is completing an Environmental Science degree, Dhruvisha Gosai, who is completing Mathematics and Statistics degree, Lauren Rickert, who is completing an of Arts degree in Sociology, and myself, who is completing an Environmental Management and Sustainable Development degree. Such multidisciplinary background should add value to the research with our different perspectives and skill sets.

Report Objectives

While the LS program is highly regarded, little is known about the program's effectiveness over a longer term. This research will seek to answer this question by reviewing the impact of the LS course on lasting behaviours of change, and whether it created a ripple effect through the community or from one generation to another.

The focus of the research was based on the following discussion questions:

- Does the behaviour last or even build on from the end of course?
- What does change look like?
- What are the barriers for pursuing their sustainability objectives; including what helped them pursue these objectives
- Were there any other changes that occurred concerning action or self; which they hadn't contemplated at the time of the course?
- How the participant influenced others to make sustainable life choices
- The type of community activities participants became involved with after the course
- Interaction with past participants

Methodology

The evaluation process used for this research is Performance Story Reporting (PSR), developed by Jess Dart. PSR is an evaluation method that uses a participatory approach; this includes asking people who were involved with the course to tell their stories and share their experiences. This will provide an opportunity for LS to find out whether the course is on track to achieve its intended outcomes. It also provided an opportunity for the participants to talk about what has worked well and hasn't worked well. Steps one to four, as shown in Figure 2 below (Roughley and Dart 2009, 15), were completed between February and November 2017.

Figure 2: Key steps in developing a performance story report

The reason for using this type of evaluation tool is that it can deliver a more in-depth view of what is happening, rather than an overly simplified picture where organisational, social and economic developments are reduced to a single number. This is completed by collecting a range of data to populate the results into charts and tables to demonstrate the extent of achievements of the course outcomes.

Step One: Scoping

Planning Workshop

A planning workshop was held to determine what was to be evaluated by setting evaluation questions and identifying the people to be interviewed (refer to Appendix A for the agenda). LS representatives, Murdoch University representatives and students attended this meeting to provide a foundation for the expected outcome of the project.

It was decided that the best approach would be to interview past participants to explore changes that have occurred in the key topic areas and investigate the long-term behaviour change after the course was completed. A database was provided by LS, containing email and phone contact details of past course participants from the previous five years.

During the planning workshop all stakeholders helped to create a program logic model as this would diagrammatically represent the hierarchy of the projects' activities, outputs and outcomes and the links between them.

Program Logic

Program Logic refers to the understanding of how the different components of a program works together to produce outcomes. "It captures the rationale behind a program, probing and outlining the anticipated cause-and-effect relationships between program activities, outputs, intermediate outcomes and longer-term desired outcomes. A program logic is usually represented as a diagram or matrix; which shows a series of expected consequences, not just a sequence of events" (Roughley 2009 p 7).

The program logic helped to form the basis from which evaluation questions were developed, and provided the framework for presenting the evidence. By looking the logic behind LS is doing (Objectives), and then measure how the course has attributed to the outcomes (Verses Outputs), shown in Figure 3 on page 11. A review of the program logic of the organisation would be within the final stage of the program reporting method, through a Summit Meeting. There are some contributions noted from the Expert Panel on what feeds actions and a suggested restructure of the program logic, refer to Appendix W.

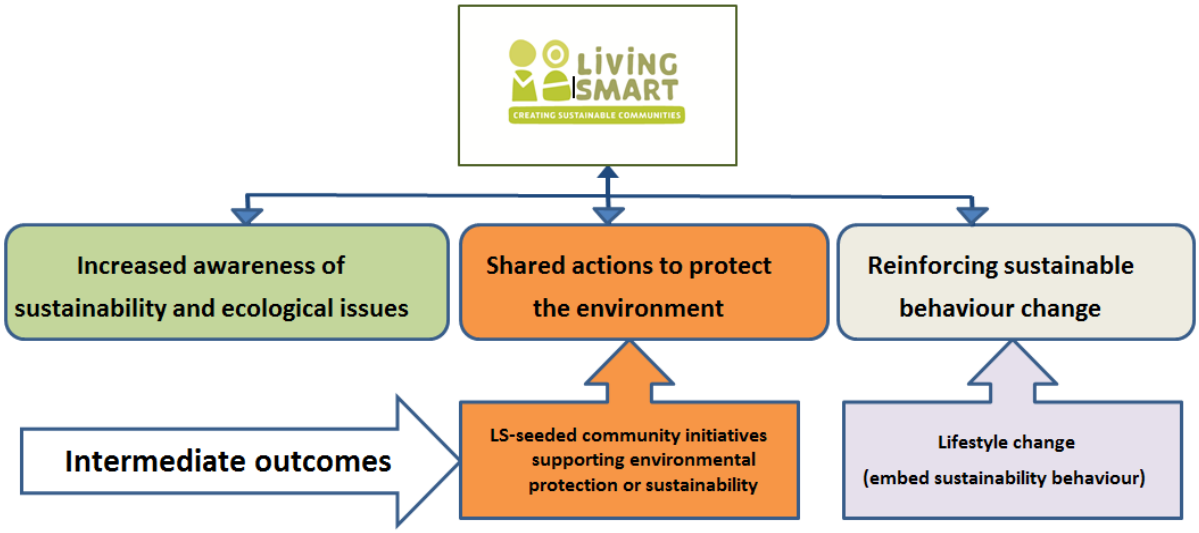

Figure 3: Living Smart Program Logic Model

Survey Design

A series of questions were created by the LS team to capture stories of change and a small number of additional questions related to expected outcomes, to see if the course has made a difference and to check what was the situation of the participants had completed the course. This was achieved by checking if there were any changes made through the LS course, then check if the change was only short-term or if there was any evidence that the change had been sustained.

The respondents were asked open-ended questions, which let the respondents answer in their own words, capturing relevant stories that could illustrate significant behavioural changes after completing the LS course. A Likert scale of 1 to 5 was used for attitude questions as a way to provide a coded response for data analysis.

Step Two: Evidence Gathering

Survey data collection was conducted over March and April 2017 by the 4 Murdoch University students. The survey participants were randomly selected from the database, with 64 participants willing to partake in the survey and to share their behaviour change stories.

Before the interview process, some establishment steps were involved such as making contact with the facilitators and making them familiar with our research. As well the facilitators, sent out an email to potential survey participants, outlined in Appendix B, to notify them of being contacted via phone for research purposes. Informed consent was obtained by explaining how the

information would be recorded and who will have access to this information. The survey was audiotaped, allowing for an uninterrupted flow of discussion, and the taping was transcribed into the survey response sheets. No personal information was collected; as the survey was voluntary and the information will be held as anonymous.

***Expert Panel Feedback**: Facilitator initial contact prior to the survey has been viewed as being biased; the introduction email stated that the survey was looking at long term change, which introduces a bias through expectation.*

***Conclusion:** A lot of people being surveyed did not receive the initial email from the facilitator however no actual record of the numbers were kept. Biased was reduced as the survey was conducted by a third party (Murdoch University students). Consider different ways to structure and present the survey to avoid bias in any future evaluations.*

***Note:** as part of this social research project, an Expert Panel was set up to review the process and results to evaluable the durable changes, refer to page 13 for more information.*

Participants

A broad range of participants were consulted, who responded to fifteen set questions given in Appendix C, to gain an in-depth view of how they experienced the LS course. Those who declined to be surveyed were asked two set questions given in Appendix D. This would provide a better understanding of how the model works post-course, intending to review and revise the course as needed.

A total of 64 full surveys were collected, along with another 7 declined participants who answered 2 set questions. The participants surveyed were selected from LS courses held from 2014 to 2016, across the following areas:

- Fremantle
- Melville
- Kwinana
- Victoria Park
- Cockburn
- Canning
- Margaret River

Step Three: Integrated Data Analysis

The group of students aimed to convert stories to quantifiable data and evaluate stories for the demonstration of significant change. The process involved analysing the data to interpret the qualitative and quantitative data from the survey results. It also allowed us to sort the data into various categories with respect to the key areas practised by the individuals on a regular basis.

Analysing questions that assisted in evaluating the interview data included:

- how many respondents have similar responses to the question
- clarifying that the change has come about through the LS course
- where does the answer fit in the results chart

The responses from the surveys were entered into an excel spreadsheet, and commonalities of descriptive statistics were calculated. This served to establish a way to code the participant's opinions and viewpoints, allowing for a qualitative analysis of the program. Coding provides results that could be expressed as numbers and percentages in a chart.

Qualitative methods provide a tool to gather valuable data on the process of change from the participants' perspective. This qualitative evaluation can provide a way to look into the future and improve the design of the program.

Step Four: Expert Panel

Overview

An Expert Panel is formed to access the evidence of the outcomes that have been gathered. The panel usually consists of 3 to 12 people, with expertise in fields and scientific disciplines relevant to the research topic. They also judge and make statements about the extent to which the evidence is adequate to assess the progress the program is making towards its stated outcomes. The panel may also identify further evidence that may be needed to make a conclusive statement about the achievement of program outcomes.

Panel member Attributes

In fulfilling the role of an Expert Panel member, the attributes of experience and independence are seen as critical. The right experience enables a member to provide well informed advice, and it is also important that they remain impartial, so there the finding is balanced and unbiased.

Some desirable attributes of an Expert Panel member can include:

- Extensive work experience in evaluating programs
- Expert knowledge of the subject matter
- Background knowledge and ability to analyse of community-based initiatives, and
- An interest in contributing to improved outcomes for the program review.

The Role of the Expert Panel

The Expert Panel was formed to bring people together with qualifications and experiences relevant to the program outcomes. The purpose of the Expert Panel was to assess the questions asked and the quality of the evidence collated in the results of the research project. In addition they looked at the evidence to see if the outcomes illustrated how the program contributed to the outcomes.

Creating the Panel

LS compiled a list of potential Expert Panel members, keeping in mind that a member is free of direct conflicts of interest and an effort was made to keep the group appropriately balanced with respect to different points of view on the study's issues.

An email was sent out to potential Expert Panel members, refer Appendix E. Six respondents were able to attend the Expert Panel meeting, and a seventh person, Colin Ashton-Graham, provided written feedback before the meeting as he was unable to attend on the day. Expert Panel members are listed in Table 1 on page 15, along with a summary their field of expertise and experience in the research area. Refer to Appendix V for more details on the Expert Panel members.

Table 1: Expert Panel Members and Contributors

Name	Field of expertise/experience
Bruce Hegge	Certified Environmental Practitioner (CEnvP) with a PhD in Geography and has demonstrated skills in project management, presentations and report writing.
Catherine Baudains	Lecturer in Environmental Education for Sustainability at Murdoch University, and research focuses on improving the effectiveness of environmental education as an environmental management tool.
Christy Spier	Natural Resources Adelaide and Mount Lofty Ranges Urban Sustainability Officer with the main focus to facilitate community education towards a sustainable future within 19 metropolitan councils.
Clare-Francis Craig	Trained Living Smart facilitator and has attended the course personally multiple times. She is a skilled educator and manager and is currently with WA Museum as their Development Service Manager.
Colin Campbell	Performance audit and program evaluation specialist with over 25 years' experience.
Jayne Bryant	Works in strategy, community engagement and sustainability in local government. She has completed two Masters Degrees in Sustainability.
Expert Panel Contributor	
Colin Ashton-Graham	Behavioural Economist with 20 years' experience in the development, delivery and evaluation of interventions to effect sustainable behaviour change.

Expert Panel Meeting

A meeting was held with members of the Expert Panel; refer to Appendix F for the agenda. Six Expert Panel members attended the meeting on 19th October 2017. During this meeting Expert Panel members examined the data research information and made decisions on each survey question on the extent to which each of the outcomes identified has been achieved through the project. This was accomplished through examining the extent to which the outcomes been achieved and the confidence they had in each survey question.

To develop the outcomes and check if they had been achieved the panel was asked to consider the following questions:

1. Are evidence items a ‘best fit’ with the corresponding outcomes?
2. To what extent is the evidence for each outcome an adequate and credible indicator that it has been achieved?
3. Which data items provide the strongest evidence that progress has been made towards the outcome?
4. Are there items of evidence that do not support the outcome and if so, what does this mean for the evaluation of the program?
5. What additional data is needed to provide stronger evidence of outcomes?

Following the panel meeting, the evidence was reassessed keeping in mind the feedback from the panel members. This probed the quality of evidence available for each outcome in the program logic to form a set of recommendations as part of this report. For more information on feedback from Expert Panel members on each survey question refer to Appendix’s G to U.

Survey Results and Analysis Discussion

As part of the research, participants were asked to rate their experience of the LS course on a scale of 1 to 5 shown below in Figure 4. 72% of the participants rated the course as a 5; a positive experience. Most said the course had changed the way they carried out their daily lives and that they loved meeting likeminded people with inspiring stories to share.

Figure 4: Graph of responses to Question 1 of survey

***Expert Panel Feedback**: For those participants responding the result on course satisfaction is reliable. Refer to Appendix G for more information.*

***Conclusion:** Retain all end of course surveys and add additional questions to assist with future comparison. Follow up 6 months onwards after the course to check on durability and proliferation throughout the community.*

Participants were able to break into smaller groups during the LS course to explore specific issues and possibly seek solutions to a wide range of topics. During this time various viewpoints could be shared and questioned, to help build critical thinking competencies, alter attitudes towards the subject matter and increases social support. The majority of the LS participants surveyed found the group work to be a good experience and feedback of what they got from doing the group work is shown in Figure 5 on page 18.

***Expert Panel Feedback**: Deemed a bit of a loaded question in current format however concluded participants got value from the group work. Refer to Appendix J for more information.*

***Conclusion:** The question on group work is better asked as part of the end of course surveys and the results should be retained. Suggested re-wording of the question - What were the challenges and benefits of group work?*

Over two-thirds of the participants that were interviewed believed one sustainable behaviour change leads to another over time. With over half of the participants who remembered goal setting are still currently setting goals.

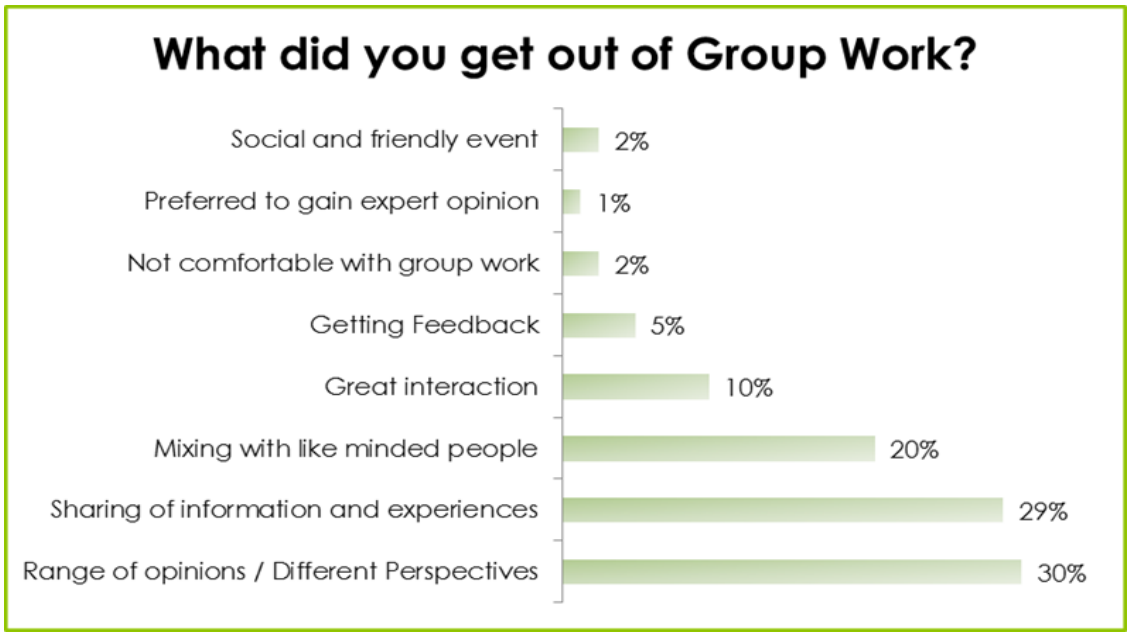

Figure 5: Graph of responses to Question 4 of survey

There was evidence of proliferation of sustainable behaviour performed in the family unit and the workplace. However for some participants, they did not influence others to adopt more sustainable behaviours. This may be caused by some barriers such as not feeling confident in sharing ideas and how others perceive sustainability.

61% of participants reported that they keep in touch with past participants from their LS course; most people that have kept in touch have formed a good friendship through having a common interest. Refer to Appendix U for more information.

The barriers identified certainly makes an impact on the participant's sustainable journey, and further research would be required to understand the strength and complexity of these barriers (Refer to Figure 6 on page 19 for the breakdown). Time and money are significant barriers that hinder individual ongoing behaviours. Unfortunately, money can only be addressed, mostly through policy instruments that encourage sustainable options.

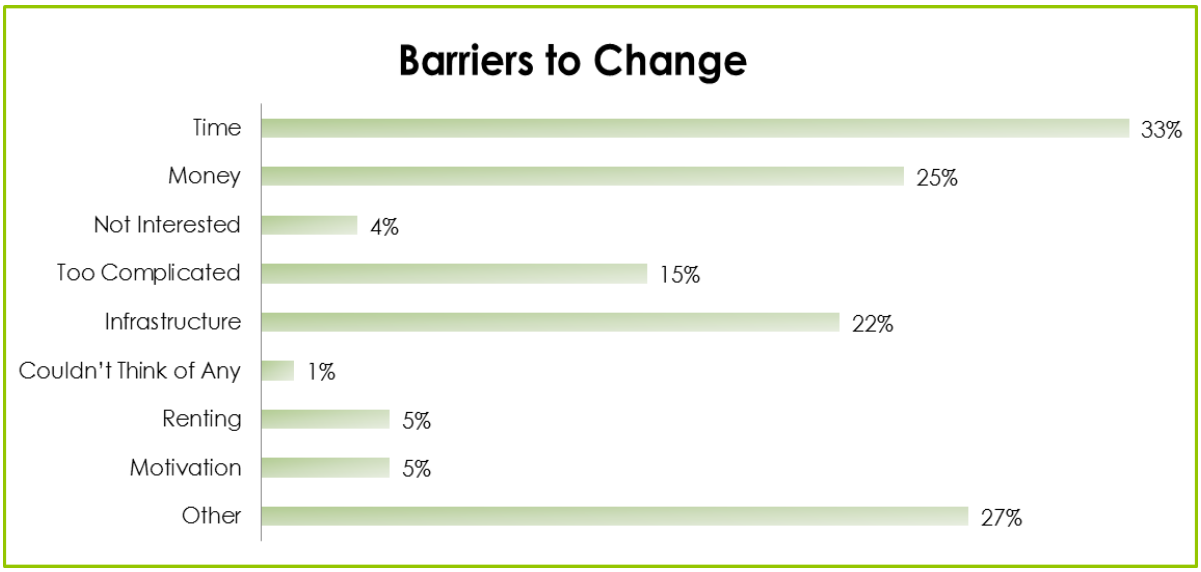

Figure 6: Graph of responses to Question 10 of survey

***Expert Panel Feedback**: Could have asked an additional question - How did this affect your changes? Refer to Appendix Q for more information.*

***Conclusion:** this could be useful to evaluate if / how the course builds resilience in participants.*

Impact on Behaviours in Key Sustainability Areas

According to the Environmental Protection Authority (EPA) food, housing and transport have the greatest environmental impact out of all the areas of domestic consumption patterns. With this in mind, the LS course addresses these key areas of impact and those related to personal sustainability; waste and consumption, transport, community, gardening, health and wellness, energy and water.

The objectives of the sessions covering the key areas are to increase awareness of environmental problems and to introduce solutions and to lay the foundations for change. Through education for sustainability, both individuals and communities can move towards more sustainable behaviour change (Robson 2004).

The interview's longer open questions gave participants space to share any personal stories of change and the interviewer to tease out what had occurred in years since the course. Note: LS

did not retain end of course surveys to provide a record of reference of the participant's behaviours at the time of the course.

From the story records, most households continued with their behaviour changes developed from the LS course, with waste and consumption, gardening for productivity, energy and water reduction having the actions taken up as shown below in Figure 7.

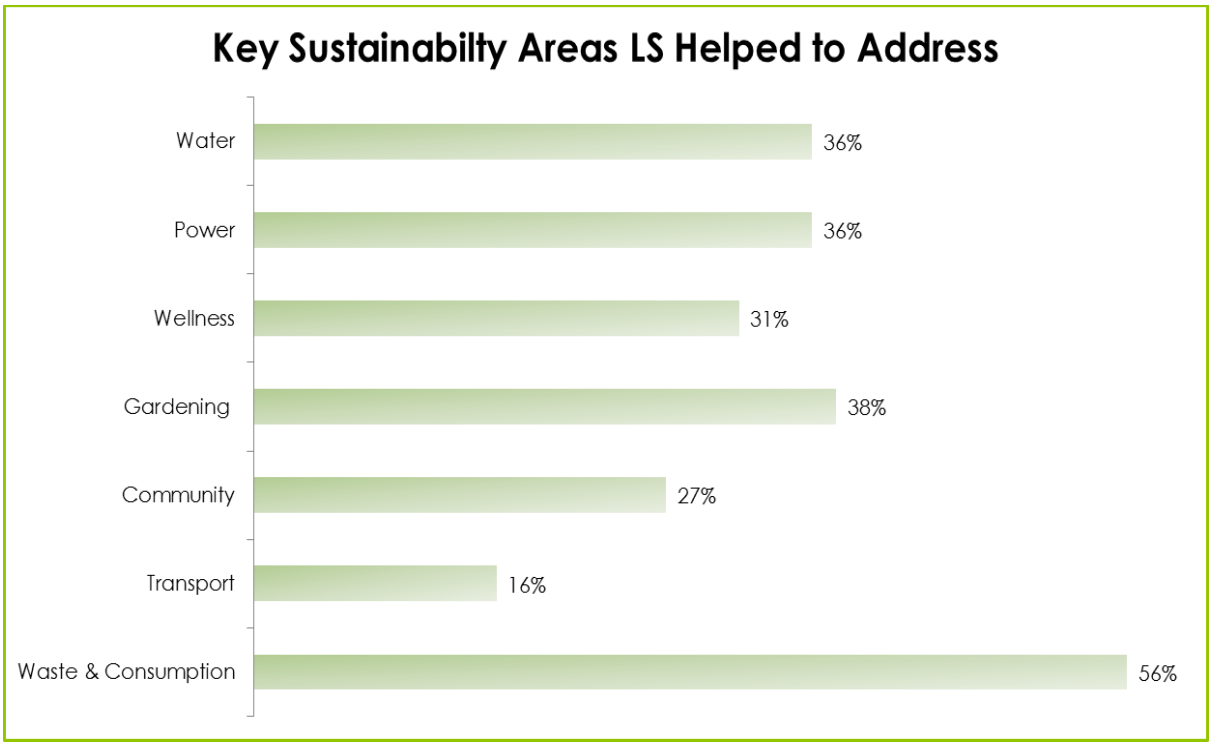

Figure 7: Graph of responses to Question 6 of survey

***Expert Panel Feedback**: Lots of rich information and recommends categorising by topic to analyse and there is a need to look at other topics to understand the nature of the change. Refer to Appendix M for more information.*

***Conclusion:** Within the subset of participants who answered their phones and agreed to an interview, the stories collected showed establishment and maintenance of change, which then became new behaviour. It is likely to be attributable to LS but difficult to assess*

Waste and Consumption

The session on waste focuses on consumption and the concept of living simply. During this session, participants view the short film, "The Story of Stuff", which looks at the life cycle of

consumer goods. Participants are challenged to reduce their waste before it hits the bin and to think about what happens to waste once it has left the home

56% of the survey participants (refer to Figure 7 on Page 20) reported that the course helped with changing their waste and consumption habits. This shows that the session on waste has had the most profound effect on participants, with the highest number of participants making and retaining this change compared to the other topics covered during the course.

The Impact of Waste

Decomposing waste landfill generates methane, a potent greenhouse gas 25 times stronger than carbon dioxide. The waste and landfill sector is responsible for around 2% of Australia's greenhouse gas emissions.

(Department of Environment and Energy)

Participants reported saving containers they can re-fill with other products; changing brands of goods from a plastic bottle to glass; owning their own takeaway coffee cups and avoiding places that won't take them. Using stainless steel coffee pods; being conscious of buying less including clothing and household items, using less plastic especially using re-usable cutlery and having implemented recycling and composting food waste at work. Refer to Table 2 for the breakdown.

Table 2: Waste and Consumption Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Reduced Waste	28
Recycling	27
Composting	23
Reduced Plastics	14
Buying in Bulk	12
No Plastic Shopping Bags	11
Reduced Consumption	10
Chickens	5
Declutter	5
Worm Farm	4
Plastic Free July	3
Waste Reduction	3
Bees Wax Wraps	2
Buys Second Hand	2
Upcycling	2

Wellness Activity	2
Sewing	1

Some of the participants recounted the visit to the Regional Resource Recovery Centre (RRRC), describing it as an 'eye opener' and leaving with the understanding that things don't go away. As well as the knowledge of what to throw away and what not to, and how to reduce waste where possible.

One participant reported their biggest change was to review their plastic waste and commit to making changes. Firstly they compared the costs of using the large plastic milk containers and that of glass containers and found it to be significantly more money. So they looked at other ways to decrease use of milk and then eventually converted to glass bottles.

Water

Participants are provided with information about the water situation in Australia and how to save water in the home. Water saving tips was discussed as well as looking at grey water options and rainwater collection systems.

36% of participants in the survey group made changes to their water use, as shown in Figure 7 on page 20. Some of the new habits formed included taking shorter showers, not flushing toilets and reducing their water usage in the garden. Most participants have become more mindful of their water use; re-using water where possible and being more conscious of running water, with some noting that their water bills had decreased by using less water. Refer to Table 3 for the breakdown of changes made by surveyed participants.

The Impact of Water

Waters is a scare resource due to the combination of low rainfall and high temperatures that causes high evaporation. As our population increases and rainfall decreases, our water resources will be placed under further stress. Managing water sustainability in the home is more cost effective than creating new supplies.

(Australian Bureau of Statistics)

Table 3: Water Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Reduced Water Use	21
Catching Water from Shower	6
Water Recycling	5

Bill Auditing	2
Water Harvesting	1

One participant reported being more mindful of what plants they brought as a means of justifying where water goes and concentrated on plants that didn't require much water. While another participant made water a big goal to achieve during the course and had set up a re-use system for recycling water that they used for flushing toilets and gardens beds.

Energy

During this area participants were introduced to the big power appliances in the home, how power consumption of different appliances can be measured and how to read a power bill. Also alternate energy supplies were introduced with a focus on solar energy, as well as learning how the orientation of a house can effect power consumption.

The Impact of Energy

The burning of fossil fuels emits carbon dioxide, this is causing climate change, one of the greatest ecological, economic and social challenges that we face. Reducing our energy use and generating electricity from renewable sources helps reduce our contribution to climate change.

(State of the Environment Report)

36% of the participants reported changes to the energy use habits as shown in Figure 7 on page 20, with a focus on being more mindful of their energy use; installing solar panels, trying out what they learnt about passive energy; and monitoring their energy bills. Refer to Table 4 for the breakdown of all the activities undertaken by the surveyed participants.

Table 4: Energy Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Power Reduction	14
Solar Panels	10
Bill Auditing	5
Solar Passive Changes	4
LED Lighting	2
Solar HWS	1

Transport

Participants are introduced to the issues around peak oil and asked to reflect upon their personal

use of fossil fuels for travel. Alternatives to cars are reviewed and discussed with the main focus on walking and bicycles.

Transport had the least number of participants changing in this area, with 16% reporting that they have made some changes to their behaviour regarding their mode of transport, as shown in Figure 7 on page 20. Types of changes are listed in Table 5.

The Impact of Travel

Australian capital cities are among the most car dependant in the world. Cars are expensive and generate carbon pollution and photochemical smog that affects the respiratory system. Alternative forms of travel are cheaper, less stressful, benefit the environment and your health.

(State of the Environment Report)

Transport is the least adopted behaviour, with barriers appearing to be the main reason for the low uptake of this topic. This is possibly due to the remoteness of some areas and limited transportation options. It was reported that the expansiveness of Perth makes commuting by bicycle difficult and the public transport system is either not suitable for their travel arrangements or too expensive.

Table 5: Transportation Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Bicycle Riding	9
Car Use Reduced	8
Public Transport	6
Walking	6
Reduced Cars in Household	2
Smaller Car	1

Health and Wellness

During this topic, participants worked through activities to assist them to think about their health, including making healthy food choices, increase their exercise and consider their mental health. Participants also had time to reflect on the health of their homes with a focus on the ingredients in everyday household products and how to make homemade alternatives. Research shows that people who focus on money and materialistic possessions are less happy and are more prone to negative mind states like depression. High consumptive lifestyles also have negative environmental consequences.

The area of wellness appeared to have some impact on individuals, especially in the areas of reducing chemicals in the household; setting goals to achieve the feeling of accomplishment and creating time to do activities that make them feel healthy. Although only a small number of participants reported having made significant changes in this area, 31% changes were a result of other habit changes such as waste reduction (refer to Figure 7 on page 20). With some participants now making their own products; beeswax wraps, deodorant, shampoo, toothpaste soaps and cleaning products. Refer to Table 6 for the type of changes made by the participants.

This topic made various changes to different people; one participant said that this session helped her declutter her house, just in time for her moving house and another reported that it helped to motivate her to live more simply. Another participant reported using the wasteless pantries to buy goods through being more conscious of chemicals in food and other products.

Table 6: Health and Wellness Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Reduced Chemicals in the House	8
Home Made Hygiene Products	7
Wellness Activity	5
Home Made Cleaning Products	5
Healthy Eating	3
Reduced Working Hours	1

The more personal lessons learnt in the wellness session were to ‘not to bite off more than you can chew' and the importance of being forgiving of oneself when things fail, especially when it came to making some of the homemade products; deodorant, toothpaste and cleaning products.

Gardening for Food Production and Biodiversity

In the gardening session, participants learnt about composting, dealing with pests in their garden and making a raised garden bed. 38% of the participants reported significant changes to their gardening habits (refer to Figure 7 on page 20). Most of the people who made changes in this area did composting of food scraps, became more mindful of what they planted due to water restrictions, concentrated growing their food in place of other plant options and started a worm farm. Refer to Table 7 on page 26 for the full breakdown of actions taken.

Table 7: Gardening Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Food Production	25
Water Wise Garden	5
Wicking Beds	2
Biodiversity	1

Some participants spoke about how this workshop helped with community proliferation (refer to Figure 8 below). An example is one participant that reported having learnt something about biodynamics and composting had helped with a volunteer role at the community garden.

Several participants were very excited to share their achievements from what they had learnt from the gardening for productivity module. Many have designed their vegetable gardens (verge side and backyard gardens) that are providing food for their families.

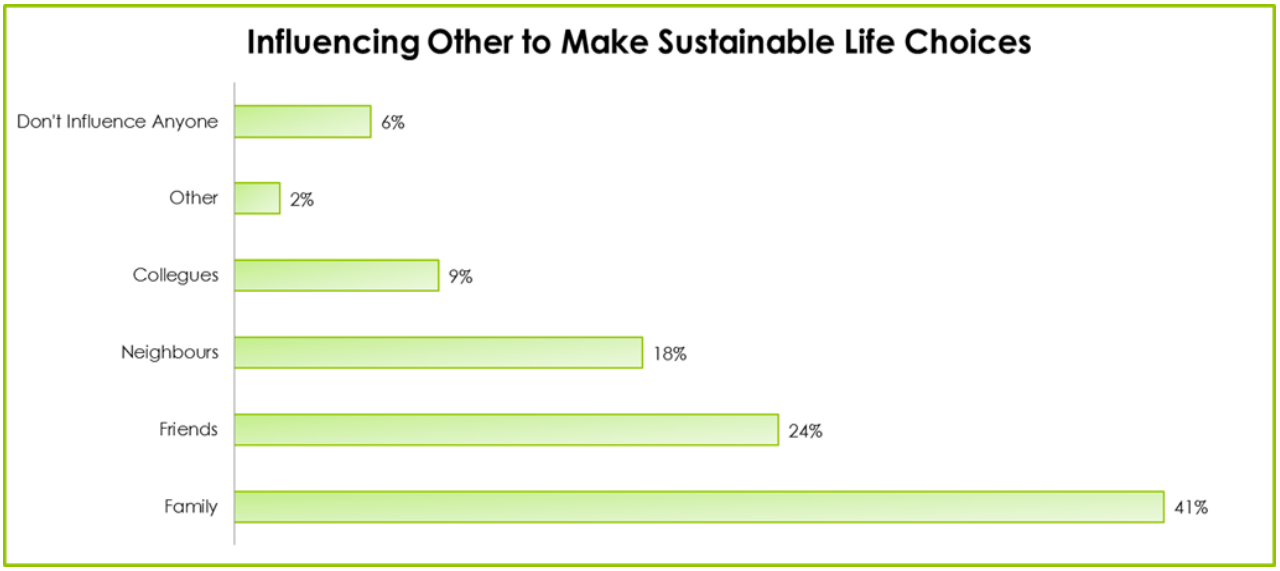

Figure 8: Graph of responses to Question 12 of survey

Community

Participants were introduced to the community topic by asking how involved they were in their community. They were also given ideas on how to get involved and taught the importance of community. 27% of the participants reported joining a community group (refer to Figure 7 on page 20). Refer to Table 8 on page 27 for the types of community groups the participants joined.

Social capital has an important role to play in creating a better community – strong social connections reinforce similarities and can bridge differences. Social capital also plays a part in making our government and business more responsive, efficient and innovative.

Table 8: Community Changes Undertaken by Surveyed Participants

Types of Behaviour Change	# of Participants
Local Community Group	21
Neighbourhood Group	14
Community Events	10
Generational Sharing	41
Local Business / Markets	7
Community Garden	6
Smarties Group	2
Transition Town	2

One participant told her story of how she became interested in making the community an important part of her life and ran the Neighbour Day her street. She was able to meet everyone on her street, as she didn't know anyone before that as she had recently moved to the area.

Other comments from participants at the community workshop included having learnt the importance of connecting with community groups and of being taught about the community involvement from a social aspect. Even though all participants said they see the benefit of the community some participants reported no longer being involved in the community due to work and family restraints.

***Expert Panel Conclusion**: There was confidence that community connections had been made, but questions on community involvement need rewording to get more meaningful information in order to ascertain the nature of these connections and influence of LS.*

Limitations

There were some limitations with this research, with the first one found early on in the project which was problems contacting past participants. Although most of the participants we interviewed were willing to share their stories, there were a few barriers in attempts of contacting participants such as:

- Incorrect contact details or no contacts provided
- Catching people when they have time available to respond to survey questions
- Too much time had lapsed between the course ending and a follow-up evaluation.

This made a total of 180+ contact attempts amongst the four Murdoch University students to gain 64 completed surveys.

Another consideration with the results of this research is the small sample size. Due to the low number of responses, a large change is required for the change to be significant. This low number could be considered a major limitation of this research, however, not all surveys need to rely on having a statistically significant sample size, especially with PSR evaluations. It is more important that the responses have been recorded accurately and the scaling used best represent how the participants felt. Then more focus can be put on taking a closer look at each answer as any feedback; positive or negative, is important.

Inadequate evidence and some past data had not been retained for evaluation comparison. There was no additional data provided from the post-course surveys of the participants, therefore no actual baseline to carry out hypothesis testing (for quantitative data analysis). Baseline data should be established as part of the early implementation phase so that monitoring data is comparable and collected consistently.

In addition, the time lag between the LS course completion and this evaluation (up to two years), at times made it hard for participants to recall when they actually started certain sustainability habits. This may have resulted in biased answers.

Overall the analysis can only assess the extent of behaviour changes through self-reporting. Therefore it is important to note that self-reporting is not the most accurate way of determining change as people tend to report themselves better than what they are (Jupp 2006). LS may wish to look towards a systematic process to quantitatively measure behavioural change.

Key Findings

Results derived from the analysis portray some beneficial trends and key areas of interest by the majority of the participants. There are also some tips on what could be done to help motivate participants on continuing their sustainable actions and support for further behaviour change post-course.

The main finding was that the feedback was positive; with most of the people surveyed not going back to “business as usual" activities. They had embedded behaviour changes learnt from the LS course into their lives and shared the information they had gained with family, friends, neighbours and colleagues. It is even worth noting that the declined participants also gave positive feedback.

There are some noted differences in the lasting behaviour across topics so there is an opportunity to analyse further, the topics that didn’t gain as much momentum and to make improvements to the course or look towards how these topics could be taught differently. This will assist in developing and refining the existing topic modules in the LS course.

It is important to collect and keep survey data and results of the course, so there is a baseline for any quantitative analysis undertaken in the future. With an established baseline there is a point from which to measure participants’ knowledge and attitudes maintained and sustained after the course has finished.

***Expert Panel Feedback**: The lack of end of course data means there is no benchmark on behaviours to enable a clear measure of post-course behaviours, this information is required for future research*

***Conclusion:** Retain all end of course surveys and add additional questions to assist with future comparison. Follow up 6 months onwards after the course to check on durability and proliferation throughout the community.*

Opportunities

The research and evidence provided for this project can be used to complete steps 5 to 7 of the PSR process. This involves the setting up of a focus group, termed a Summit Meeting, to reflect on what parts of the course are successful and what parts of the course need further development to achieve the LS outcomes.

Results derived from the analysis portray some very useful trends and key areas of interest by the majority of the participants and some tips on what could be done to help motivate them on continuing their sustainable actions. Information taken from the research is set out below (refer to Figure 9 for the breakdown of suggestions).

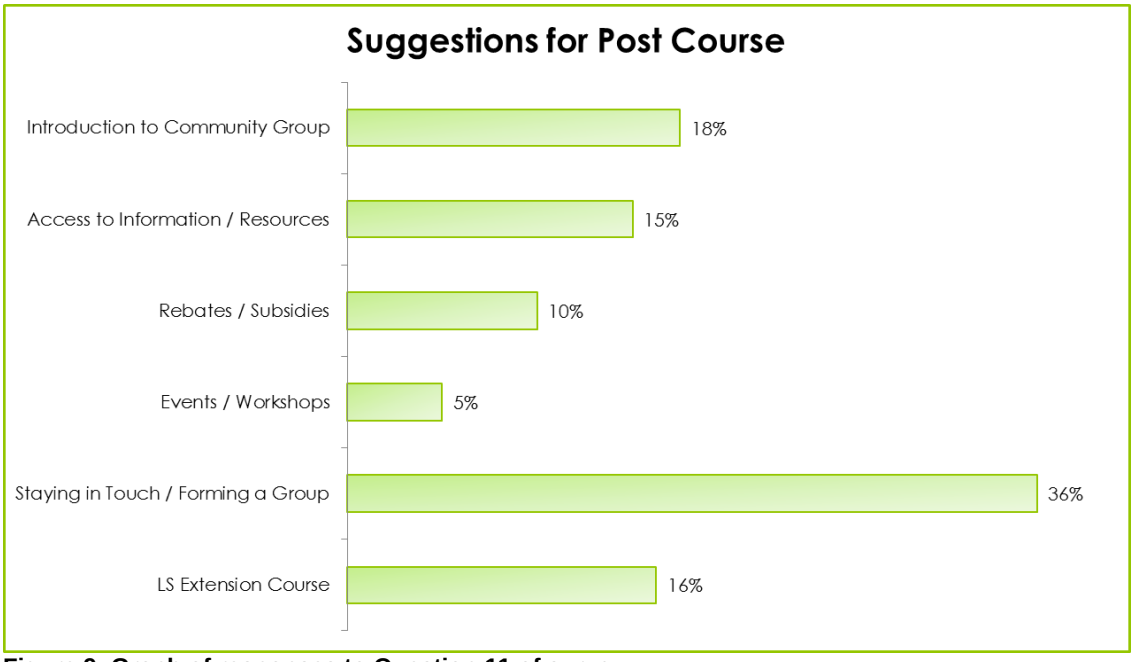

Figure 9: Graph of responses to Question 11 of survey

Staying in touch with past participants and forming a LS group would encourage individuals to persist with their sustainable journey. Additionally, a LS extension course, to build on what they have learnt from the initial course would be essential. Overall, it can be established that the LS course directly impacts on participant lifestyles to continue and build on their sustainable behaviour changes.

There is an opportunity to support and grow the network of LS groups to facilitate post course engagement and build on community groups, as participants have expressed the desire to do more. This could include creating sustainable communities through:

- Providing ongoing sessions for increasing the depth of awareness on topics
- Self-organised groups enabled by LS to undertake sustainability initiatives
- Introducing participants to existing community-based sustainability groups

Social change brings greater social cohesion; changes are more likely to occur through social contact with people who have made changes and demonstrated positive outcomes. Having someone with whom to share your struggles and successes makes the work easier and the mission less intimidating. This will also assist in motivating people to work harder to achieve their goals and continue their sustainability journey.

Another suggestion could be to select participants who are interested in taking part in longer-term research immediately at the end of the course and conduct evaluations at six monthly intervals as this will provide significant evidence regarding ongoing sustainable behaviours.

In the context of families, sustained behaviour change can be influenced by individual needs for managing costs, achieving and maintain comfort levels in household habits and routines, social influences and the need to live by one's values (Barretto et al. 2014).

This project will also provide evidence for future evaluations and comparisons, and also for marketing opportunities. Some of these marketing opportunities include:

- Past participants to host a LS course in the workplace that would encourage and support sustainable behaviour.
- Market the LS course to the Waste Authority to help reduce household generation of waste by educating the community, as this key area had the most impact from the results of the survey
- Approaching schools to engage in a social process that is both participatory and experiential, and encouraging all of their family members to join in.

From this research the LS program can now look towards using this report as a development tool for approaching local government authorities and to better market the course to hosts, offering stories and some statistics on long-term impacts. This will assist in the development to implement strategies to engage a range of sponsors, donors and partners in LS.

Conclusion

Sustainability is a complex issue and understanding the psychological, structural and social/cultural factors will lead to a successful outcome that promotes sustainability. Research shows that most individuals have a positive but passive view of sustainability and behavioural change is crucial for voluntary pro-environmental practices (Australian Bureau of Statistics 2011). Education for sustainability is going to be a big part of this solution.

Creating a sustainable community requires that individuals and organisations have the knowledge, skills, values, capacity and motivation to respond to the complex sustainability issues they encounter in their personal and working lives.

The focus needs to be shifted from knowledge of natural ecosystems – and the threats posed to them by overuse and depletion of resources – to equipping all people with the knowledge, skills and understanding necessary to make decisions based upon their full environmental, social and economic implications.

"The goal of education for sustainability is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has skills, attitudes, motivations and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones" (Čeřovský 1976).

One of the most fundamental defining characteristics of effective education for sustainability is that it must lead to actions which result in better environmental outcomes, not simply the accumulation of inert knowledge or impractical skills (Simmons & Volk 2002). The LS program has considered barriers to change and has developed a successful sustainability education program to help create awareness and solutions to environmental issues for course participants. In addition, the LS program encourages positive environmental behaviour through goal setting and developing skills and sharing this through community involvement.

In conclusion, the research has shown that the LS course has provided the catalyst for encouraging lasting, sustainability behaviours across some of the key topic areas. The areas of waste and consumption, gardening for productivity and power and water reduction had the most uptake of making changes. While in contrast transportation options and community interaction behaviours were the least adopted areas by the sample group. However, the proliferation of sustainable behaviour and intergenerational value change was evident in all areas.

The results from this social research project will be used by LS to market their course to prospective participants and enter into new market areas such as the corporate sector, as well as being used for future funding requests to local councils.

This report will provide helpful information for the development of the LS course. Running this social research program has shown that there is a strong commitment to change from participants in the program and that the program as it stands is effective. Every participant surveyed has embedded changes into their lives.

"When we dream alone it is only a dream, but when many dream together it is the beginning of a new reality." ~ ***Friedensreich Hundertwasser***

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APPENDICES

Appendix A – Planning Workshop Agenda

Murdoch University SUS331
Living Smart Research Internship

PLANNING WORKSHOP

Thursday 23 February 2017, 1.30 – 3.30 p.m. AWST
Venue: Learning Link 1.001E, Murdoch University

AGENDA

1. Welcome and introductions to newcomers (Hana Jestribek & guest facilitators) [5 mins]

2. Purpose and scope of Planning Meeting [5 mins]

3. Timeline, project deliverables and key milestones [10 mins]

4. Comments or questions about the background materials circulated to date (Programme Logic dealt with next item) [10 mins]

5. Programme Logic – preliminary draft

    a. Grant to explain [10 mins]

    b. Kick-around [15 mins]

6. Evaluation questions

    a. Refine evaluation brief/questions and sub-questions for each project topic (refer Allan/Martin's Living Smart Project PowerPoint handout) [15 mins]

    b. Determine appropriate methodology for each set of evaluation questions (e.g. short or long phone interview, face to face meeting, randomised or targeted, sample size, data collection, resource requirements [30 mins]

7. Develop work plan (with reference to timeline) [15 mins]

8. Next steps, process questions and wrap-up [5 mins]

Appendix B – Email from Facilitator to Past Participants

Dear <past-participant>

Do you remember us? <Facilitators names> really enjoyed hosting your Living Smart course in <year> in <venue or suburb> and we hope you enjoyed it too!

We have exciting news! The Living Smart program has four -students from Murdoch uni involved in evaluating the course on our behalf. This will help us to improve the course for future participants.

As part of this, the students will be contacting past participants– such as yourself – and ask you a series of questions about what you took away from the course, including any long lasting changes you may have made.

We're hoping this survey will be as accurate as possible, so the students will be asking you for your honest opinion about the program. Your privacy will be protected.

Your participation in this survey will be invaluable to the Living Smart program and we hope you will participate. The students will contact you to pre-arrange a phone call at a time that is convenient for you. When they phone you, they will ask a series of questions about the Living Smart program. The phone conversation will take approximately 15 minutes, depending on your answers. The students are happy to call you back if you run out of time, or you can email them the remaining answers if need be.

I hope you can help – we really want to make Living Smart even better.

If however, you don't want to be involved please let me know and I'll let the students know not to contact you.

Cheers,

<Facilitator first name>

Appendix C – Survey Question and Response Sheet

Name:

Suburb:

1. **What was your experience of the Living Smart course like?**
Prompts: was it a positive experience? Did you enjoy the course? Why / why not?
1 2 3 4 5
(1=negative; 3-4=some positives; 5=positive)

2. **Do you remember the group work?**
Prompts: group discussions and activities **Y / N**

3. **How comfortable were you participating in group work throughout the course?**
1 2 3 4 5
(1=very uncomfortable; 3 = neutral; 5 = very comfortable)

4. **What did you get out of the group work?**
Prompt: The course centred around group activities, how did you find them? Better than working individually or would you have preferred to work as an individual?

5. **Did Living Smart teach you about goal setting? Y/ N**

- If Y - do you still set goals?

6. **Were there particular areas of your life that the course help you address? If so, what were they?**
Prompt: waste, wellness, energy, water, transport, gardening

7. **Can you tell me about the changes you've made after the course that you're really <u>proud</u> of?**

8. **Did you find one change led to another? Y/N**

   Do you have any examples you could share?

9. **What other areas were you motivated to change because of the course?**

Prompt: volumes of waste, your health, water use, power use, transport modes, community interaction (don't re-ask key areas if already mentioned in above)

10. **What kind of <u>barriers</u> have you come across since completing the course, that may have stopped you from doing what you wanted to do (in terms of behaviour change)?**

Prompts: was there anything that made day-to-day change difficult? (E.g. time, money, too complicated, not interested)

11. **What do you think could have helped you make further changes once the course finished?**

Prompt: finding like-minded community groups, staying in touch with other participants, regular events, rebates/subsidies, access to information

12. **How have you influenced your family, friends or neighbours in helping them to make sustainable life choices?**

13. **Are you still in the same neighbourhood as when you were in the Living Smart course? Y/N**

14. **A. What kind of community activities are you involved with since completing the course?**

14. B. Do you keep in touch with past participants?

Appendix D – Declined Survey Question and Response Sheet

Name:
Suburb:

Declined reason (if any) –

1. **What was your experience of the Living Smart course like?**
Prompts: was it a positive experience? Did you enjoy the course? Why / why not?

1 2 3 4 5

(1=very uncomfortable; 3 = neutral; 5 = very comfortable)

2. **Has there been any impact on your lifestyle since the course?**

1 2 3 4 5

(1=no change; 2=very little changed; 3-4=some changes had occurred; 5=big impact!

Additional Notes -

Appendix E – Letter of Invitation to Potential Expert Panel Member

Dear Name

LETTER OF INVITATION TO POTENTIAL EXPERT PANEL COMMITTEE MEMBER

On behalf of, Living Smart, I am pleased to invite you to participate in a one-day meeting to evaluate our environmental education programme.

The meeting will be held on **Thursday, the 19th of October, 2017 at Murdoch University from 9:00 am to 12:00 pm**. Living Smart is staffing the evaluation research project in conjunction with a student from Murdoch University and Colin Campbell as the facilitator to help complete the tasks and keep us on track.

You have been recommended to us as a person who would make a valuable contribution to the evaluation of our program. By participating on this committee, you will have an opportunity to guide Living Smart with their next steps, to improve and promote their course.

As a panel member, you would be asked to:

- Consider the program logic model and all of the evidence that has been collected
- Provide feedback about the extent to which the evidence is an adequate, unbiased, relevant and credible indicator that the outcomes have been achieved
- Identify any additional information and evidence required to provide stronger evidence of outcomes
- Recommend improvements to evidence collection and recording in future.

If you are interested, I will send you a copy of our report and other relevant information so that you can get a better feel for the event.

It would be greatly appreciated if you could please indicate your interest in joining the Expert Panel meeting, by sending a **RSVP** no later than Monday, 16th of October 2017.

If you have any queries regarding this matter, please contact Stephanie Jennings via return email or by phone on 0466 723 688.

I look forward to having you join with other community partners to take a close look at our environmental education programme.

Sincerely,

Appendix F – Expert Panel Meeting Agenda

Expert Panel Meeting Agenda

Location:	**School of Business and Governance Boardroom**
Date:	**Thursday, 19th of October 2017**
Time:	**9:00 am to 12:00 noon**

9:00 Welcome and Introductions **Colin Campbell**

9:05 Session 1: Research Background

- Program background **Stephanie Jennings**
- Evaluation questions and program logic **Grant Gernhoefer**
- Methodology and Outline role of Expert Panel **Julie Morrissey**

9:30 Session 2: Reviewing the Questions and Responses **Colin Campbell**

- Does the question & its intent show a good match or fit with the corresponding outcomes?
- To what extent is the evidence for each research question an adequate and credible indicator that it have been achieved?
- Which data items provide the strongest evidence that progress has been made towards lifestyle behavior change?
- Are there items of evidence that do not support that progress has been made towards lifestyle behavior change and if so, what does this mean for the evaluation of the program?

11:00 Morning Tea

11:15 Session 3: Agreed Panel Conclusions **Colin Campbell**

- Summarise and agree on findings from Session 2
- What additional data is required to provide stronger evidence of outcome
- Recommendations for improving data collection and analysis methods for future phases of the program

11:45 Question and Answer Time **Open Forum**

12:00 Close

Appendix G – Survey Question 1 Overview

Q1 - What was your experience of the Living Smart course like?	
Purpose	Ascertain positive or negative experience of course
Anticipated Response	High – Satisfaction ratings high
Survey Results Discussion	In total, this question has a response from 71 survey participants (includes responses from 7 participants who declined the full survey). They were asked to rate their experience of the LS course on a scale of 1 to 5. Most participants said the course had changed the way they carried out their daily lives and that they loved meeting likeminded people with inspiring stories to share.
Top Response	72% - Positive
Top Comments	Great, Enjoyable, Positive
Other Information	No participants gave any negative ratings.
Expert Panel Feedback	No suggested changes to this question
Conclusion	The Expert Panel believes there is strong evidence around this component and the result is reliable

Appendix H – Survey Question 2 Overview

Q2 – Do you remember the group work?	
Purpose	Prompt the participant's memory of the course. Group work is interactive, participative and practical and enables participants to be active participants in the learning process enhancing motivation to learn, depth of understanding and appreciation of the subject being taught. This can lead to participants finding workshops more interesting, enjoyable and stimulating than being lectured. It is thought group work promotes higher achievement, increased positive interpersonal relationships, higher self-esteem, critical thinking competencies, altered attitude towards subject matter and increased social support.
Survey Results Discussion	When asked if they remembered doing the group work in the course, 95% of the participants (n=64) responded with yes.
Other Information	Group work is a valuable tool for retaining learning as it can encourage passive learners to become active and facilitate the transfer of ideas.
Expert Panel Feedback	This question is fine
Conclusion	This question isn't needed and better to move out all group work questions to end of course survey

Appendix I – Survey Question 3 Overview

Q3 – How comfortable were you participating in group work throughout the course?	
Survey Question	How comfortable were you participating in group work throughout the course?
Purpose	Identify their social confidence in group work LS is founded on group work to provide the context of the course. Group work can be an effective method to motivate participants, gain ideas from different perspectives, encourage social interaction and promote learning, resulting in long-term retention.
Anticipated Response	Mixed though improved by course experience
Survey Results Discussion	68% of the 64 total participants were very comfortable in the group work, with a few commenting that meeting the like-minded people made their good or bad experiences affirming. 48% acknowledged they felt comfortable during the group work, and 10% gave a neutral response. There were 4% of the participants (2 in total), that felt uncomfortable while working in the group activities.
Top Response	68% - Very Comfortable
Top Comments	Comfortable ,Fun
Expert Panel Feedback	This question was not needed as part of the research project
Conclusion	This question needs to be added into the end of course survey

Appendix J – Survey Question 4 Overview

Q4 – What did you get out of the group work?	
Purpose	Ascertain value of group work and shift in confidence. Participants were able to break into smaller groups during the course to explore specific issues and possibly seek solutions to a wide range of topics. During this time various viewpoints could be shared and questioned, to help build critical thinking competencies, alter attitudes towards the subject matter and increases social support.
Anticipated Response	Improved confidence / Enjoyed it
Survey Results Discussion	The majority of the LS participants surveyed found the group work to be a good experience. The top three responses were a range of opinions / listening to different perspectives, sharing information and experiences and mixing with likeminded people with having maximum weight of 30%, 29% and 20% respectively.
Top Response	30% - Range of opinions / Different Perspectives
Top Comments	Great opportunity to hear what other people are doing and hear other people's point of view / experiences / sharing of skills
Expert Panel Feedback	Deemed a loaded question in its current format as it prompts people to come up with a positive response Suggested re-wording of the question - What were the challenges and benefits of group work?
Conclusion	Even though most people responded positively there were some that did respond negatively, indicating that the question was not completely biased towards a positive response. We can conclude participants got value from the group work. However, the Panel's suggested wording presents a more neutral question.

Appendix K – Survey Question 5 Overview

Q5 – Did Living Smart teach you about goal setting? / Do you continue to set goals?	
Purpose	Identify prior goals learning The goal setting method helps to identify something that people want to achieve and creates realistic, manageable steps towards achieving the goal. Goal setting takes away the thinking and reasoning and puts into a more formal and effective process
Anticipated response	Mostly via LS
Survey Results Discussion	67% of participants (n=64) had learned to set goals through LS, with 63% of those who have continued setting goals after completing the course. 33% of participants did not remember the goal-setting module. Most of the no responses already knew about goal setting from other activities in life. In comparison, 38% of the respondents have not continued with goal setting after LS course. The reasons were given for this included; not interested in setting goals, or they were not really a goal orientated person, or they just wanted to live simply.
Top Response	67% - Yes Learn through LS
Other Information	The LS course is a unique environmental educator as it facilitates behaviour change through goal setting. Participants are introduced early to goal setting to make changing habits easier. The participants start with simple goals; then the facilitators builds on goal setting skills throughout the program. This provides a source of motivation as provides a comparison of a present and desirable future state.
Expert Panel Feedback	Acknowledged that participants did learn about goal setting from LS course but only a partial response Could ask if they were currently using it and if goal setting is valued by them?
Conclusion	Unsure if there is valuable information from the survey in answer to this question

Appendix L – Survey Question 6 Overview

Q6 – Were there particular areas of your life that the course helped you to address? If so, what were they?	
Purpose of Question	Lasting value of course education This question asked what particular areas of the participant's life did the course help to address, in relation to the topics covered.
Survey Results Discussion	From that data we can observe that a significant number of participants got involved in reducing their waste and consumption, then with the remainder of topics having fairly much the same weighting except the transport topic that has the least uptake.
Top Response	56% - Waste & Consumption
Top Comments	Reduced Waste, Started recycling, Started composting
Expert Panel Feedback	Need to create a benchmark from end of course surveys moving forward. Lots of rich information and recommends categorising by topic to analyse and there is a need to look at other topics to understand the nature of the change.
Conclusion	Within the subset of participants who answered their phone and agreed to an interview, the stories collected showed establishment and maintenance of change, which then became new behaviour. Difficult to assess how much is attributed to the LS course.

Appendix M – Survey Question 7 Overview

Q7 – Can you tell me about the changes you've made after the course that you're really proud of?	
Purpose	Did fresh change occur from course? Prompt memories
Question Analysis	It is evident that a significant number of participants were involved in waste and consumption, and gardening post the course and continued it. Not only did LS impart the knowledge of segregation of the waste and reduction in the first place but the activities like a visit to the RRRC and looking at an individual's household waste in detail, created the awareness of what could be improved. In addition, proper techniques of composting resulted with a large number of individuals reducing a substantial amount of waste and growing their own food which in turn results in less consumption.
Top Response	27% - Waste & Consumption
Top Comments	Reduced Waste, Started recycling, Started composting
Expert Panel Feedback	Need to create a benchmark from end of course surveys moving forward. Lots of rich information and recommends categorising by topic to analyse and there is a need to look at other topics to understand the nature of the change.
Conclusion	Within the subset of participants who answered their phone and agreed to an interview, the stories collected showed establishment and maintenance of change, which then became new behaviour. Difficult to assess how much is attributed to the LS course.

Appendix N – Survey Question 8 Overview

Q8 - Did you find one change led to another? Do you have any examples you could share?	
Purpose	Prompt of story of significant change
Top Response	77% - Yes
Top Comments	Started at household level which lead to community activities / Started with waste reduction which lead to other activities / Looking for alternatives / Reducing waste lead to composting
Feedback from Expert Panel	Need to review data to see if the change started with individual actions, or household actions or start with waste (common starting topics).
Conclusion	Within the subset of participants who answered their phone and agreed to an interview, the stories collected showed establishment and maintenance of change, which then became new behaviour. Difficult to assess how much is attributed to the LS course.

Appendix O – Survey Question 9 Overview

Q9 – What other areas were you motivated to change because of the course?	
Purpose	Prompt to ascertain spill over change
Top Response	23% - Waste & Consumption
Top Comments	Reduced Waste, Started recycling, Started composting
Expert Panel Feedback	Previous questions are enough to tease out a story Suggested rewording of the question - Did you gain other skills though the LS course?
Conclusion	This question is not required

Appendix P – Survey Question 10 Overview

Q10 – What kind of barriers have come across since completing the course, that may have stopped you from doing what you wanted to do (in terms of behaviour change)?	
Purpose	Get short answers on change in key areas of interest to key hosts
Summary	Various things can stop us; a lack of time or motivation, too many other priorities or not knowing where to start. One technique LS use is goal setting
Top Response	33% - Time
Top Comments	Too busy to make time to make their household / lifestyle more sustainable
Expert Panel Feedback	Showed time is a genuine issue Could have asked an additional question - How did this affect your changes?
Conclusion	The common issue of lack of time could be addressed in the course. Need to show how the course builds resilience within people

Appendix Q – Survey Question 11 Overview

Q11 – What do you think could have helped you make further changes once the course finished?	
Purpose	Identify if barriers occur and if the participant can identify solutions
Top Response	32% - Staying in Touch / Forming a Group
Top Comments	Staying in touch or forming a group would help to overcome some barriers and keep up the momentum / motivation
Expert Panel Feedback	Not discussed
Conclusion	This information can be used by LS to see if there are any changes they want to incorporate after courses are completed

Appendix R – Survey Question 12 Overview

Q12 – How have you influenced your family, friends or neighbours in helping them to make sustainable life choices?	
Purpose	What is the flow-on effect within the community of someone doing a LS community course
Top Response	41% - Family
Top Comments	Sharing experiences with family was predominantly around gardening and reducing waste and consumption
Expert Panel Feedback	Needs to be reworded to open up the responses and split into 2 questions Suggested re-wording of the question - Have you influenced others to make sustainable life changes as a result of the LS course?
Conclusion	Need to ask for more details on the type of influence and further analyse data, linking responses to participant confidence and course impact.

Appendix S – Survey Question 13 Overview

Q13 – Are you still in the same neighbourhood as when you were in the Living Smart course?	
Purpose	What is the lasting or growing impact on participant's community involvement?
Top Response	80% - Yes
Expert Panel Feedback	Why is it there?
Conclusion	Not really needed as people move from community for various reasons and still can be active citizens in a non-geographically-based community. Better to separate out local community connection question from active citizen question. For example moved to be closer to work/ kids school (refer to Participant #7 & 56).

Appendix T – Survey Question 14A Overview

Q14A – What kind of community activities are you involved with since completing the course?	
Purpose	What is the lasting or growing impact on participant's community involvement?
Top Response	27% - Local Community Group
Top Comments	76% of participants who joined a local community group joined another community group
Expert Panel Feedback	Needs to be reworded to open up the responses and split into 2 questions Suggested rewording of the question - Have you become more actively engaged in your local community or broader community since completing the LS course?
Conclusion	Confident that diverse change has occurred and community connections have been made, however needs a lot more work to get meaningful information

Appendix U – Survey Question 14B Overview

Q14B – Do you keep in touch with past participants?	
Purpose	What is the lasting or growing impact on participant's community involvement?
Top Response	61% - Yes
Top Comments Feedback	24 participants made new friendships through LS
Expert Panel Feedback	Large number of friends formed from LS course - good outcome
Conclusion	Good question to show building friendships in the community

Appendix V – Expert Panel Members Information

Christy Spier

Natural Resources Adelaide and Mount Lofty Ranges Urban Sustainability Officer

The Urban Sustainability team are currently coordinating Living Smart in South Australia. We initiated a relationship with Be Living Smart Inc. in 2016 and are committed to developing the program for the next three years. Our broader role is to facilitate community education towards a sustainable future within our 19 metropolitan councils.

Prior to this role Christy has undertaken community garden research and action, managed and developed the non-profit organisation Encounter Youth and has trained in permaculture, professional writing and communications.

Colin Campbell

B.Sc. Agric. Econs, M.Sc. NRM, University of Western Australia, GAICD

Colin is a performance audit and program evaluation specialist with over 25 years' experience. Colin was a performance auditor at the Western Australian Office of the Auditor General (OAG) for 12 years from 2002 to 2014. For the last six years he was Assistant Auditor General in charge of Information Systems and Performance audit. During his time at the OAG, Colin was directly or indirectly involved in producing over 100 reports to Parliament on a large range of topics covering all aspects of Departmental and Government operations. Prior to working at the OAG Colin ran a small natural resource economics management consultancy. His work focused on program and project evaluation in the natural resource sectors. Since leaving the OAG Colin has worked as a performance audit consultant.

Colin Ashton-Graham

Colin is a Behavioural Economist with twenty years' experience in the development, delivery and evaluation of interventions to effect sustainable behaviour change. He has applied these skills to demand management of water, energy, waste, garden nutrients (river health), physical activity (population health) and transport. He is now an independent consultant offering his skills and experience to government, education and not for profit clients with a passion for facilitating more sustainable community outcomes. Colin's rounded skill set in behaviour change practice is a unique resource for designing effective programs with strong accountabilities.

Colin's contributions include:

- leading the development of the UK National Cycling Strategy
- coordination of the Perth Bicycle Network Plan
- developing TravelSmart as a world-leading behaviour change program
- authoring a case study for the Garnaut Review on Climate Change (Australia)
- developing a cross cutting voluntary demand management program (Living Smart Households) to address conservation of water, energy, waste and car travel

Bruce Hegge

Bruce is a highly respected scientist and business leader with over 25 years of experience. He has many years of commercial experience running a professional services consultancy and has demonstrated the delivery of good governance and business strategy through a number of organisations. Bruce has a strong understanding of environmental assessment, monitoring and management of coastal and marine infrastructure projects. He is a Certified Environmental Practitioner (CEnvP) with a PhD in Geography and has demonstrated skills in project management, presentations and report writing. He has an excellent understanding of environmental legislation, regulation and management frameworks at both the State and Federal levels. Bruce holds a number of board-level positions, and is presently Deputy Chair of Perth Natural Resource Management and Treasurer of Be Living Smart.

Dr Catherine Baudains
BSc (Hons), DipEd, PhD – Lecturer: Education for Sustainability

Catherine is a lecturer in Environmental Education for Sustainability at Murdoch University. Her research interests focus on improving the effectiveness of environmental education as an environmental management tool, or more specifically, changing human behaviour in order to achieve a sustainable environmental outcome. She completed her doctoral research in this area, examining various education strategies in the context of transport use, developing the TravelSmart Workplace programme and examining Workplace Travel Plans. Project leader for Program 4 (Policies and Action for Woodland and Forest Restoration) in the State Centre of Excellence for Climate Change, Woodland and Forest Health.

Her voluntary activities contribute to the community in a range of areas, all of which link with my interest in environmental education. She is a long standing executive member of the WA Chapter of the Australian Association for Environmental Education (AAEE WA); coordinator of the annual AAEE Catchments Corridors and Coasts program; was a member of the National Environment Working Group for the Australian Anglican Church; a Strategy Leader for Environmental Responsibility element of the Perth Mission Plan; and was granted life membership of the Murdoch University Environmental Science Association for ongoing contribution to the student body.

Jayne Bryant

Jayne works in strategy, community engagement and sustainability in local government. She has completed two Masters Degrees in Sweden: Strategic Leadership towards sustainability; and Human Ecology: Culture Power and Sustainability. Jayne has worked with the City of Canning as a Sustainability Coordinator for City Futures and Project Manager for Our City Our Future. This is where she first attended the Living Smart Course and has been a long-term host of the course.

Clare-Frances Craig

Clare is a trained Living Smart facilitator and has attended the course personally multiple times. She is a skilled educator and manager and is currently with WA Museum as their Development Service Manager

Appendix W – Expert Panel Feedback on Program Logic Framework

There is a lack of identification of the real behavioural steps (i.e. Enabling Actions and action Outcomes) that would be required to contribute to the Aims and Objectives. This can be resolved by working back from the Aims and asking 'what' action/ behaviour is required to deliver this and 'what', in turn, does that action/ behaviour require.

Expert Panel Feedback: "The 'Program Logic' framework could be refined to help us to better test the contributions of different aspects of Living Smart and the behavioural pathways that will be required. The logic could be structured:

- AIMS (long term and requiring many influences above and beyond the Living Smart program)
- OBJECTIVES (near term outcomes of Living Smart activities)
- ENABLING ACTIONS (the behaviour changes that are required to achieve the objectives)
- OUTPUTS (the things that Living Smart provides to trigger the Enabling Actions)
- INPUTS (the Living Smart resources that support the Outputs)"

Conclusion: Revise Logic Framework for future evaluations