

FRAMEWORK FOR EVALUATING THE EFFECTIVENESS OF ENVIRONMENTAL EDUCATION

This document outlines Sustainable Coastlines' framework for influencing and evaluating changes in behaviour to actively prevent marine litter. The framework sets in place tools for ongoing measurement of the success of Sustainable Coastlines' awareness activities, allowing the charity to work towards achieving sustained behavioural change across a large and varied audience.

The core research question that this framework sets out to address is:
“How effective is the ‘Love your Coast’ presentation in influencing positive, sustained behaviour change with regards to littering?”

The two critical tools for the implementation of this framework – the Educational Presentation (delivered in person or through an educational video) and the Evaluation Surveys – are detailed in the sections below, followed by an outline of a program for implementing the framework.

Educational Presentation

Delivery

- Context (Presentations): Delivered by experienced Sustainable Coastlines staff or ‘Love your Coast’ trained presenters.
- Context (Video): Video played to students by teacher.
- Audience: School students and their teachers.
- Duration: Flexible, but most often between 15 to 45 minutes.
- Media Format (Presentations): Digital Powerpoint presentation with audio and videos embedded, to include various calls to action as below (see *Framework Implementation*).
- Media Format (Video): Educational video provided to schools in multiple formats, to include various calls to action as below (see *Framework Implementation*).
- Content: Combination of photos, videos, oral stories and theatrical enactments. Visual content is very high quality and almost no text is displayed.
- Structure:
 - Introduction of speaker (often done by teacher / principal)
 - Presentation
 - Question and answer session (if time allows)

Key Messages & Calls to Action

Key Message	Call to Action
“Litter dropped on the ground travels to the beach through waterways like rivers and drains”	“Always dispose of your rubbish carefully.”
“Rubbish in the ocean harms and kills the creatures that live there”	“If you see litter on the ground, pick it up and dispose of it carefully.”
“Plastic rubbish lasts a long time at sea, getting into our seafood and making people sick”	“Use fewer single-use plastic products”

Evaluation Surveys

Survey Framework: School Students

Survey Activity	Objectives	Timing
Baseline	<ul style="list-style-type: none"> Measure pre-existing knowledge and behaviours relevant to key messages and calls to action, for comparison with future survey results. 	Before presentation
Interim	<ul style="list-style-type: none"> Measure short-term behaviour change when compared with previous survey results. Measure enjoyment, understanding, learning, and sharing of information. 	0-4 weeks after presentation
Post-Intervention	<ul style="list-style-type: none"> Measure sustained behaviour change when compared to previous survey results. Measure sustained memory, information retention and effectiveness of key messages. 	At least 6, but no more than 12 months after presentation

Survey Framework: Teachers

These surveys should also be used to validate (to an extent) the results from the student surveys. Teachers need to understand that we need unbiased results, so we need to make it explicit that it is not helpful for what we are trying to achieve if they try and make their students look better than what they are – this is common and often not intentional.

Survey Activity	Objectives	Timing
Baseline	<ul style="list-style-type: none"> • Measure teachers' perspectives on students' pre-existing behaviours relevant to key messages and calls to action, for comparison with future survey results. • Measure existing relevant lesson content. 	Before presentation
Interim	<ul style="list-style-type: none"> • Measure teachers' perspectives on students' short-term behaviour change when compared with previous survey results. • Measure teacher enjoyment, and teacher's perspectives on student understanding, learning, and sharing of information. • Measure intention to continue teaching relevant lesson content & resources required. 	0-4 weeks after presentation
Post-Intervention	<ul style="list-style-type: none"> • Measure teachers' perspectives on students' sustained behaviour change when compared to previous survey results. • Measure sustained memory, information retention and sharing of information. • Measure continued teaching efforts & most useful resources. 	At least 6, but no more than 12 months after presentation

Format/Design

- All three surveys conducted on both Study Groups and Control Groups.
- Survey packs to be delivered to schools prior to each survey interval. These packs will include:
 - Brief introduction / Note explaining "how to and why"
 - Teacher survey (A3 folded to A4)
 - Student surveys (double-sided A4 sheets, enough for class)
 - *Optional but very useful:* Postage paid return envelope
- Survey sheets colour-coded for easy differentiation and for ease of data entry.
 - Baseline = White paper
 - Interim = Yellow paper
 - Post-Intervention = Blue paper
- Every survey to include unique sequential number that will be recorded at time of data entry, to allow matching of paper to raw data at a later date if necessary.
- *Optional:* 'Be in to Win' incentive for the teacher to complete and return surveys.

Framework Implementation

This study will classify results for three social demographics, using two delivery formats each with three distinct calls to action. It will be repeated in an urban and rural context. The aim is for the resulting data to establish best practice for our interventions for each

demographic.

Social Demographic

The New Zealand education system classifies schools by ranking their socio-demographic situation from 1 (poorest) to 10 (richest). This is an average across the whole school. This has been split into three demographic groups:

1. Deciles 1-3
2. Deciles 4-6
3. Deciles 7-10

Delivery Formats

An educational video has been made of a presenter delivering the same educational message with three versions of giving out different calls to action. The purpose of this test is to find out whether a video can achieve the most efficient method of changing behaviour without personal visits. This will only show whether that particular video works and therefore we expect that we will need to repeat studies like this as there is a great variation as to what different ages and demographics of people prefer within videos.

- a) Presentation dataset
- b) Video dataset

Calls to Action

We will test the three calls to action:

- i. “Don’t litter in the first place: Dispose of your rubbish with care.” (Don’t litter)
- ii. “Wherever you are – on the beach, at school, or out in public – pick-up the rubbish that you find.” (Pick it up)
- iii. “Use fewer single-use plastic products by growing your own food, choosing reusable items etc.” (Reduce use)

Timing

The study will be carried out over the course of 3 school terms, based on the ‘SC Behaviour change program plan’ document compiled by Studio Huss – excluding Activities 2 (Making a pledge) and 3 (Maintaining a diary) which we will test in phase two of the study the following year.

Educational presentations and evaluation surveys will be delivered to a range of student age groups according to the following plan:

- **Year 1 – 2014:** Study focus is on Year 4-8 Students, aged roughly 8 – 12

- **Year 2 – 2015:** Study focus is on Year 1-3 students, aged roughly 5–7 and Year 9-10 students, aged roughly 13-15.
- **Year 3 – 2016:** Study focus is on Year 11-12 students, aged roughly 16-17 and Year 13 students, aged roughly 18

Implementation plan for Year 1 – 2014

- **Term 1: 3 February to 17 April**
Baseline Survey and Intervention (Presentation or Video)
- **Term 2: 5 May to 4 July**
Interim Survey (start of Term)
- **Term 3: 21 July to 26 September**
Post Intervention Survey (end of Term)
- **Term 4: 13 October to 19 December**
Evaluation and reporting of data

	Demographic	Delivery	Calls to Action	
Year 4 – 6 (Primary Schools)	1. Decile 1 – 3 2. Decile 4 – 6 3. Decile 7 – 10	a) Presentation dataset b) Video dataset	i. Don't litter ii. Pick it up iii. Reduce use	18 schools (3 x 2 x 3 = 18)
Year 7 – 8 (Intermediate Schools)	1. Decile 1 – 3 2. Decile 4 – 6 3. Decile 7 – 10	a) Presentation dataset b) Video dataset	i. Don't litter ii. Pick it up iii. Reduce use	18 schools (3 x 2 x 3 = 18)
Control Groups (Year 4 – 6)	1. Decile 1 – 3 2. Decile 4 – 6 3. Decile 7 – 10	No presentation	N/A	3 schools
Control Groups (Year 7 – 8)	1. Decile 1 – 3 2. Decile 4 – 6 3. Decile 7 – 10	No presentation	N/A	3 schools
Total Schools				42

By repeating the above format for schools classed as “rural”, the total number of schools required for the first year of this study is 84.

The study will be based on between 50 - 75 students per school. 84 schools x 75 students (this may be reduced based on feedback of required data sets) = potentially 6,300 surveys per survey intervention.

With 3 survey interventions there will be potentially 18,900 (6,300 x 3) surveys completed and entered during Year 1.

Frequently Asked Questions and Supporting Notes:

1. What is the minimum/ideal data set?

If you apply a 95% confidence level (pretty standard) with a confidence interval of 4 (i.e. the result is within 4 pts of the total population), then you need a sample of 548 for each survey (548 out of 6,300). In this context:

- *Population = Total Amount of Students Receiving Presentation*
- *Sample = Minimum No. of Students that need to complete surveys*
- *Confidence Level = 95%*
- *Confidence Interval (also called margin of error) = (TBC based on pop & sample size), but for purposes of this example, use 4.*

So for a survey result of 64%, this would allow us to make the statement: “We are 95% confident that 64% of the students that received our presentation (+/- 4%) do X.” This means that we are 95% confident that between 60 and 68% of those that received the presentation would do X.

See <http://www.surveysystem.com/sscalc.htm#one> for explanation of terms and calculators to work out sample size needed or confidence level for each percentage result that comes from survey analysis.

2. Does each key message need to translate to a call to action? Our current survey presents the problem (3/4 key messages) and solution – the solution linking with the calls to action.

Not one per message but at least connect a call to action with one or more messages. Whenever you use a message, if it is not an explicit action you are requesting then you should add one, otherwise it is difficult for the listener to know how to respond in the manner you would like them to.

3. Can open-ended questions such as “What do you do to change how much plastic you use when you are at home” be replaced with check-box answers without leading respondents into certain answers?

If you have a good understanding of what people generally do then its fine. If not, then use open-ended. With stated-preference always randomly list the choices to avoid placing the ones you believe are most prevalent at the top, and thereby biasing the choices of respondents.

4. When testing the effectiveness of a certain call to action from our presentation, is it critical that we exclude any mention of the other two calls to action during the presentation?

No, all calls to action can be included in the presentation.

5. How effective are our suggested methods for quantifying individual change in waste creation (question 5 Student Baseline, question 9 Student Interim/Post-Intervention), and can you suggest a better method of measuring this?

Don't try to quantify 'individual' change, rather focus on 'population' level change. Quantifying can be troublesome. It's better to focus on the degree or extent of the change that occurs. If you looked at the change in the frequency of behaviours i.e. x% more students now recycle very often compared x% who recycled very often before the intervention – it is a more accurate reflection of change. Using numbers is too specific to be an accurate representation of change.

6. In order to include some kind of Most Significant Change (MSC) analysis, how detailed would keeping a diary have to be in terms of designing content for it to be an effective method of capturing MSC content at the same time? Are there other more efficient ways to do this? Could there be a space for the students to do it as say a homework assignment on the follow-up survey (ask them to write a story for example)?

Simplicity is the key, so I would agree with your 'homework' idea. You could provide a simple template for them and an example they can follow.

7. Would the questions in the Post Intervention Survey around “what will you do...” be enough to constitute a pledge or commitment?

A pledge or commitment only works when the pressure to follow through is internalised and this only happens when it is public declaration. The kids (and/or parents) should sign something, which is then displayed prominently in the school classroom.