

Effective Environmental Education Campaigns: Working with the Community and Small Business

Executive Summary

by

**Roberta Ryan, Peter Davies, Susan Rudland
and Anita Mack**

**University of NSW
School of Social Science and Policy
and
Elton Consulting**

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For further information, please contact Roberta Ryan at Elton Consulting, P.O.Box 1488, Bondi Junction, NSW 2022. Phone (02) 9387 2600, fax (02) 9387 2557, email roberta@elton.com.au

Primary authors

Roberta Ryan, UNSW School of Social Science & Policy
Peter Davies, UNSW School of Social Science & Policy (formerly Waverley Council)
Anita Mack, UNSW School of Social Science & Policy
Susan Rudland UNSW School of Social Science & Policy

Contributing authors and researchers

Rebekah Brown; Kate Robilliard; Phillip Mar; Robyn Smith; Megan Blaxland; Carol Healy.

Editorial assistance: Linda Barach, Davies Consulting

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Executive Summary

1. Introduction

This draft document reports original and highly-significant research, offering a rich and complex analysis of relationships between environmental values, attitudes, knowledge and behaviour. With the recent release of the NSW EPA report *Who Cares about the Environment? 2000*, widespread recognition of the limits of purely structural approaches, and the concomitant value of source control solutions to stormwater pollution, this summary offers crucial insights into policy and planning imperatives. Moreover, it does so from a uniquely trans-disciplinary perspective, designing and developing environmental education initiatives using physical science (i.e. the identification and quantification of physical pollutants) and social science (i.e. social research and behavioural analysis).

The project was funded by the NSW Stormwater Trust to evaluate the effectiveness of education campaigns and source control on urban stormwater quality. This research has not previously been undertaken in Australia and the project has developed and tested a number of social science methodologies and theories around the importance and value of community attitudes and behavioural change.

Waverley Council and the University of NSW (UNSW) Schools of Social Science and Policy and Civil and Environmental Engineering jointly developed the project which was awarded to Waverley Council in 1999 under Stage 2 of the NSW Stormwater Trust Grants.

The following reports the social science and community education findings of the project in relation to residents and small businesses. These approaches can be applied to the design, implementation and monitoring of successful environmental education campaigns.

As part of this project the UNSW School of Civil and Environmental Engineering has undertaken physical monitoring of the contaminants from road surfaces. This data is to be reported separately by Associate Professor James Ball.

Broadly the project was divided into three components:

1. Development and implementation of targeted stormwater education campaigns. This part of the program relied on comprehensive pre and post intervention social surveys and was managed by the UNSW School of Social Science and Policy.
2. Physical monitoring of pollutants within the catchment. This involved a range of techniques.
 - a) developing and applying observational monitoring techniques to determine the state of the catchment, as undertaken by Waverley Council and UNSW School of Social Science and Policy;
 - b) measuring the quantities of gross pollutants captured by the structural devices (carried out by Waverley Council); and
 - c) quantifying contaminant loads on the road surface via chemical monitoring through previously developed street vacuuming techniques, as undertaken by UNSW School of Civil and Environmental Engineering.
3. Installation of a gross pollution control device at the pipe end of three of the four study catchments: Oceanview Avenue, Diamond Bay; Hewlett Street Bronte; and Tamarama Beach. Installation was managed by Waverley Council. Additional

funding was obtained from the Federal Government's Coast and Clean Seas Program for the device at Tamarama.

This executive summary presents findings related to components 1, 2a, 2b and 3. The results from component 2c are to be reported separately by Associate Professor James Ball, UNSW School of Civil and Environmental Engineering.

Within these three components the project sought to address four objectives:

1. To involve the community in stormwater pollution reduction strategies and to evaluate the effectiveness of these strategies on specific groups, land uses and activities.
2. To provide quantitative information on the effectiveness of education programs aimed at the residential and commercial stakeholders.
3. To develop innovative community education strategies that other councils may adopt.
4. To assess the costs/benefits of installing stormwater pollution control devices in small residential catchments.

For the purposes of this study, the community was broadly defined to include those that live, work, use or visit the catchments.

Four stormwater catchments or sub-catchments were selected across the Waverley Local Government Area. They are located within the suburbs of Dover Heights, Bronte, Charing Cross, and Bondi. The selection of these areas was based on clearly defined stormwater catchment, land use and demographic characteristics (insofar as they were representative of the Waverley LGA).

Dover Heights and Bronte were selected as intervention sites to test community education strategies with residents. Charing Cross acted as the intervention site for an education campaign with small businesses. The control site for both residential and commercial campaigns (that is, the area where no campaigns were conducted) was Bondi.

2. Working with the community – the residential campaigns

Community education campaigns were developed around extensively researched demographics, environmental values and attitudes, communication preferences, and levels of knowledge. They were targeted to locality-specific information and characteristics, and were linked by consistent messages around community values and attachments. Community education materials included a series of catchment-specific postcards and directly addressed letters, sent to residents across the local area. Some were also directed at professional gardeners and maintenance staff. A separate campaign targeted contract gardeners with a mail-out and an article in a professional newsletter. In addition, activities in Bronte involved school children and a street party.

3. Working with small business – the commercial campaign

As with the campaign above, social surveys were used to identify key messages, assess levels of knowledge, attitudes and behaviour, and suggest communication preferences. The campaign concentrated on a series of small scale activities, with information kits, directly-addressed letters, locality-specific posters and postcards. These were all supported by a

series of walk-around visits to local businesses in Charing Cross, accompanied at times by representatives from Council. Council also initiated a regulatory approach with 3 targeted audits.

4. Summary List of Findings

4.1 The residential campaign

4.1.1 The community education strategies

- Recall of the community education campaigns was positive across the two study areas of Diamond Bay and Bronte.
- The locally-targeted postcards and letters were most commonly remembered in both intervention areas.
- The street party and letter-boxed flyers featured in descriptions of campaign activities by Bronte respondents, as did the project involvement of UNSW.
- The Bronte street party was described as an effective way to enhance community values, norms and relationships. This encouraged residents to particularly engage with education messages.
- The majority of Bronte respondents reported the campaigns were effective, although only a small number subsequently described why. The campaigns were perceived to be effective because they increased awareness and educated people, they were locally targeted, they influenced people to change their behaviour, and they were different and unusual.
- Less than half the respondents from Diamond Bay offered a view on the effectiveness of the campaigns. A small number said they were effective as they raised awareness and caused them to change their behaviour.

4.1.2 Changes as a result of community education

- Some major shifts in attitudes and values appear to have occurred between the pre and post-test surveys. Responses showed a shift away from externalised attitudes and values (eg. the experts will solve the problems, and nothing I can do will help) towards a neutral middle ground.
- The ranking of environmental issues of importance remained consistent across pre and post-test surveys, with respondents nominating air pollution first, followed by the pollution of beaches and other waterways, and litter and dumped rubbish.
- Respondents in Bronte rated the pollution of beaches and other waterways as significantly more important than did respondents from Diamond Bay and Bondi. Litter and dumped rubbish remained a significant issue of concern in Diamond Bay.
- Sewerage was nominated as a key pollutant of oceans and other waterways in pre-test results, whereas stormwater pollution and litter and dumped rubbish dominated post-test. After the community education campaigns, sewerage had diminished in importance for respondents in Diamond Bay and Bronte, although it remained a key issue for respondents in Bondi. Stormwater pollution and litter and dumped rubbish consistently

dominated responses across Diamond Bay and Bronte, almost totally excluding other possible causes.

- Pre-test responses nominated builders as the most responsible for causing water pollution, followed by industry and the community. After the community education campaigns, industry was regarded as the most responsible, followed by individuals and the community. This suggests a shift away from externalised notions of responsibility towards internalised and collective notions of responsibility.
- Knowledge increased across all but one of the questions regarding potential pollutants in stormwater.
- The potential effects of soil, sand and silt in the stormwater system was not clearly understood, and this is particularly noteworthy given this was a feature of all of the campaign material. It is possible that people do not perceive these materials to be as harmful as they perceive detergents from car washes and animal faeces to be.
- Pre-test levels of knowledge were relatively high, but rose further at the post-test.
- Levels of knowledge particularly increased in Diamond Bay and Bronte. This suggests that knowledge improved as a result of the community education campaigns.
- The community education campaign focused on key messages and target behaviours. Post-test analysis established changes in some, albeit not all, of these practices. This may relate to issues of access and control - for example, two-thirds of respondents in the post-test survey reported they had no access to grassed areas.
- Respondents with higher levels of environmental knowledge and who identified on-street car washing as contributing to stormwater pollution, were significantly more likely to wash cars less frequently. This suggests a significant relationship between knowledge and behaviour.
- Post-test responses indicate increased percentages of respondents disposed of waste water down the sink in the house or on the grass outside. However, increased percentages of respondents also reported they disposed of water down the stormwater drain. Comments written on the survey forms by respondents noted that many had reduced the amount of detergent used to wash the car, or else had stopped using it altogether. If respondents felt they had removed the pollutants from waste water, they may have felt justified in disposing of it down the stormwater drain.
- There were overall improvements in other practices targeted by the community education campaigns. Respondents increasingly collected up organic matter, cleared leaf litter from street gutters, and disposed of them by composting. Moreover, there was a decrease in the percentages of respondents who regularly hosed down cement areas.
- Overall levels of environmental behaviour improved between pre and post-test surveys.
- Environmental behaviour scores increased for each of the catchments. A comparison of mean scores does not establish a statistically significant relationship between improved environmental behaviour and the community education campaigns.
- Overall, there was a statistically significant relationship established between attitudes and knowledge.

- Overall environmental knowledge increased after the community education campaigns, with respondents who internalised responsibility scoring higher on the total environmental knowledge scale than did those who externalised responsibility.
- There was a statistically significant relationship between attitudes and environmental behaviour after the community education campaign. Post-test respondents scored higher on environmental behaviour than did pre-test respondents.
- Moreover, there has been a statistically significantly greater post-test shift in the relationship between internalised and externalised attitudes and environmental behaviour.
- Lastly, those identified with internalised attitudes and values have scored significantly higher on environmental behaviour.

4.2 The commercial campaign

- Businesses reported positive behaviour change following the intervention campaign. However, this change occurred in relation to a different pollution issue — waste rather than stormwater, which was the focus of the campaign. Nevertheless this indicates a willingness to modify behaviour where ownership and capacity to influence the problem are perceived.
- There was a change in attitude post-intervention in relation to general environmental concerns and also the environmental impacts of their business activities generally. This shift in attitude can be regarded as significant as previous studies have found attitudinal change is a predictor of behavioural change.
- Interestingly, respondents' perceived level of knowledge increased post-intervention. However, when tested the actual level of knowledge did not match their perception of their level understanding. What can be gained from this is an appreciation for the difficulties of translating a complexity environmental issue (such as stormwater pollution) to a level that can be readily understood by those with no specialised knowledge.
- The physical monitoring program was an essential part of the project. Without this data, it is difficult to draw any quantitative conclusions as to the levels of stormwater pollutants post-intervention, and therefore the positive effects of any behavioural change which may have occurred during the period of the study. Due to insufficient physical data, observational auditing was undertaken (as described in 5. *Methodology*). This described potential and actual behaviours contributing to stormwater pollution. As a tool for quantitative data collection, this has obvious limitations, but provided valuable information in terms of correlating reported and perceived behaviours.

5. Conclusions

This was an innovative project. There are few examples of inter-disciplinary approaches to environmental education in which the physical science aspects (ie the identification and quantification of physical pollutants) and the social science aspects (ie the behaviours that cause the pollution) are considered.

Environmental campaigns are generally designed and implemented based on little or no data about the behavioural responses, attitudes and values of their target audience. Research suggests that despite increasing awareness of and concern about environmental issues, changes in behaviour may not necessarily follow.

Of the few studies of behavioural change in relation to polluting activities there is a clear gap in understanding as to whether behavioural change occurs as a result of increased knowledge and changes in attitudes and values; or whether there are other factors at work. This project examined the factors which affect behaviour impacting on stormwater pollution specifically.

The results of the foregoing establish that environmental attitudes, values, knowledge and behaviour changed as a result of education interventions.

Key features for successful campaigns include locality-specific education messages, strategies and resources, underpinned by research regarding community values, attitudes, concerns and communication preferences.

The full report is essential reading for all government bodies, environmental organisations, researchers and communicators involved in environmental education at any level.