



ASTA Science Awareness Raising Project

TASMANIAN CASE STUDY:

New Norfolk Air Quality

The purpose of the Tasmanian case study is to illustrate the adaptations made by the New Norfolk community to the ASTA Science Awareness Raising Model.

The case study has been prepared from information collated from the project proposal, mid-project report, teleconferences, final project report and STA Coordinator feedback.

Background

The town of New Norfolk was identified by a CSIRO study in Tasmania as in the top four Tasmanian cities/towns with poor air quality. Local community members also considered the air quality, particularly in winter, as poor. Factors contributing to this issue were thought to be wood burning, illegal backyard burn offs, and forestry regeneration burns.

The students of New Norfolk High School decided to measure and raise awareness of air quality because wood smoke is commonly visible in the Derwent Valley in winter, especially in the early mornings and late afternoons. When sufficient air quality information has been collected the students will draw conclusions on the quality of air in the Derwent Valley. It is hoped the air quality information collected will be used for other associated science projects. Local Leader

Aim of the project

The aim of the project was to:

- promote awareness about the issues associated with the air quality in New Norfolk and surrounding areas of the Derwent Valley, particularly in winter with the effects of wood burning for heating

- change the attitudes and behaviours of the wider community towards heating methods used in New Norfolk.

Project Involvement

This project was set up and run by the New Norfolk High School grade 9/10 Science Extended Class (about 25 students) with guidance from their science teacher (also the Local Leader). Significant partners working with New Norfolk High School students were:

Business/industry – Norske Skog Boyer (paper mill)

Local government – Derwent Valley Council

Media/publicity – Derwent Valley Gazette, E-magine, National Science Week Coordinator Tasmania,

Local interest groups – Air Watch – Department of Primary Industries, Water and Environment (DPIWE)

Services – New Norfolk Police Station, local sign writer.

As well as the enormous input into the project

by the partners, a high level of cooperation and support was received from a number of local organisations.

Doing the project

The Local Leader invited members of the community to a meeting to explain the project. From there the Community Reference Committee (CRC) started with three partners and increased exponentially to eight as the committee started working. The CRC met regularly and some meetings were attended by the Science Teachers Association (STA) Coordinator.

Members of the CRC were influential in maximising community participation. Membership included representatives from the local council and local newspaper, businesses and local interest groups.

The project was planned and guided by New Norfolk High School and the CRC members provided significant support from their areas of expertise. For example council ensured the mural and public signs met the appropriate public display guidelines, the newspaper published project articles, advertisements, updates and survey data.

Student Activities

A notable feature of this project has been the major role the New Norfolk Extended Science students took in conducting this project. The Local Leader was the project coordinator and facilitator while students communicated, consulted and worked directly with the project partners and members of the community.

From the project log kept by the students it is evident they worked in small groups on project tasks that included:

- contacting and meeting with members of the community to arrange the construction and location of the signs, billboard, mural, and placement of the weather monitoring equipment in New Norfolk. This involved

phone calls, meetings, letter writing, negotiating permission from property owners

- designing the signs, billboard and mural with assistance from a local sign writer
- preparation of pamphlets, brochures and articles and project updates for regular publication in 'The Gazette'
- design, distribution, collection and analysis of an in-school survey about heaters
- design of a community air quality survey
- collection of completed surveys and analysis of the data
- research about air quality in Tasmania, the contributing factors, alternative energy/heating sources, costs of alternative appliances. Research was undertaken through a number of mediums including internet searches, discussions with local experts from the Council, CSIRO and DPIWE
- preparation and posting of invitations to the media launch
- preparation of the Powerpoint presentation and speeches for the Media Launch and Community Forum
- presentations by students at the Media Launch and Community Forum
- assisting with the installation of the air and weather monitoring equipment
- learning how to use the air and weather monitoring equipment
- filing project information for future reference
- assisting with the web site construction
- being interviewed for a community radio program.

An entry from the project Log Book dated 15 August 2002 demonstrates just how involved the New Norfolk High School students were in the project:

Last night at our Community Forum at the Council Chambers three students made a speech about what we've been doing, what we've done and what we still plan to do. It was a great turn out with (a) green politician amongst the guests. The boys were put to the test when a former science professor fired out some tough questions. But with the help of our teacher they handled things quite smoothly. Project Log Book Entry 15/8/02

Science experiences for students from executing the project

- research into air quality, contributing factors and possible solutions
- design of instruments to gather data from the community about air quality in New Norfolk and surrounding areas
- analysis of survey data
- interpretation of data and transcription into an appropriate medium for presenting information to the community
- presentation of information to the community
- collection and interpretation of readings from the air quality and weather station to report to the community using various media
- learning about science through real-life issues.

School and broader community awareness raising strategies included:

- design, distribution and collection of an in-school survey about the type of heating used
- design and collection of a community survey about air quality distributed to the New Norfolk community through 'The Gazette' on 12 June 2002
- design and painting of a community air quality mural in Burnett Street in the town centre
- publication of the results of the 120 surveys returned in The Gazette
- design and construction of air quality signs **'AIR – What are you breathing these days?'** erected on the Lyell Highway and in Circle St at the entrance to New Norfolk
- students speaking to community experts on the topic
- phone calls and letters to the school from concerned residents
- media launch by the Environment Minister David Llewellyn who presented New Norfolk High School with air quality and weather monitoring equipment donated by Norske Skog Boyer.

The smoke from wood heaters consists of high levels of fine particles (and gases, some of which are toxic) and there is some evidence that these cause health effects. The information that the students collect through Airwatch could be very valuable and help to focus on this problem. Environment Minister David Llewellyn

- permanent fixture for monitoring equipment set up in the New Norfolk Police station yard
- construction of a billboard in High Street (town centre) displays details of the project
- design, construction and maintenance of a web site for air quality in New Norfolk – www.discovery.tased.edu.au/airwatch
- results from the weather station and air reading posted on the web site, published in 'The Gazette' and posted on the community billboard
- air quality readings published during National Science Week
- A Community Forum run by New Norfolk students at the Derwent Valley Council Social Room on Wednesday August 14, 6.30pm to discuss the air quality was attended by 30 people
- use of radio, TV and print media to convey information

- radio interview with Edge Radio 99.3 FM on Monday 16 September 2002
- a petition about a proposed Wood Heater Buy Back Scheme.

Project outcomes

The outcomes of the project were achieved and more. The project has been a springboard for further investigation on the air quality of the Derwent Valley and looking at solutions to the air quality dilemma. STA Coordinator

The response and involvement of the community in this project, indicates the aim to raise awareness about air quality in New Norfolk, particularly to do with wood smoke, was achieved.

The results of the community survey indicated a significant proportion of the community believe that there is an air quality problem that needs to be addressed.

When I go outside I can smell the smoke so badly when it hangs like fog across the town, it used to never be like this years ago. Survey respondent

Daily air quality readings were being taken and the results published on the project website, in 'The Gazette' and posted on the community billboard.

As a result of this level of awareness, community members have been challenged to use their wood heaters in a more efficient manner if they are not going to change to an alternative source of heating.

Project continuation beyond the trial

The New Norfolk community members involved in the Air Quality project have rallied behind the initiative and are in agreement it is worthwhile to pursue into the future until recognition of the problem is acknowledged by government sources. Local Leader

The ongoing publication of daily air quality readings for members of the public to view will enable the community to observe weather information and

related conditions in New Norfolk over summer and note any improvements.

We have also put together a petition about a proposed Wood Heater Buy Back Scheme that may be a step to ensure better air quality in New Norfolk. The scheme has already been successful in Launceston where the option is available to exchange your wood heater for an alternative heating source (such as a heat pump) that is a lot more environmentally friendly and after the initial cost, save money. This initial cost is made easier by a five hundred dollar bonus given on evidence of replacing your wood heater. Airwatch web site: www.discover.tased.edu.au/airwatch/

Project Costs

The main expenditure items in the Tasmanian Air Quality project budget were for materials for the street sign and mural.

The in-kind support for the project received from many sections of the community was significant. The Derwent Valley Gazette donated thousands of dollars worth of space in the newspaper for project articles and advertising as well as editorial assistance with student's writing.

The Derwent Valley Council donated labour, materials, venue hire and photo copying facilities worth thousands of dollars.

Norske-Skog Bayer mill donated air quality and weather monitoring equipment worth \$2,500 in recognition of the dedication of students to improving air quality in the area.

A number of school staff, students, and parents as well as community groups, businesses, and individuals donated time to assist students with many aspects of the project. These included designing the street sign and mural, website construction, organisation of events, installation of the weather monitoring equipment, preparation of media material, catering and project administration.

Was the project successful?

From the perspective of a student learning experience the following comments support the success of the Tasmanian ASTA Science Awareness Raising Project. The summary of the community feedback further in this case study, expands on the success of the project from a science awareness raising perspective.

This project is a prime example of learning beyond the classroom. It is a great example of students working with business and community members, developing a wide range of skills and knowledge. New Norfolk High School Principal, Newsletter 28 June 2002

The project was successful in raising the issue that the science curriculum is relevant to real-life situations for the students. STA Coordinator

The following quotes are taken from the Local Leader's project report.

- *The Air Quality ASTA Science Awareness Raising Project in New Norfolk was a resounding success. Many community links were forged with the high school and all project participants were eager and helpful for the duration of the project.*
- *Most of the members of the New Norfolk community were interested in the topic, helpful and had something to share.*
- *Students experienced 'real life' issues when organising project tasks and completing jobs. They had to operate inside and outside their usual school culture.*
- *Students worked extremely well when they were engaged with 'hands on' activities. Several students excelled in the out-of-school environment, showcasing their understandings of the science issues to the wide community.*
- *Community partnerships developed between the students, police, council, industry, businesses and community members.*

- *People in the community were very appreciative of the hard work done by the students. The community gained a deeper understanding of the extended science students' work and their role in helping to educate others.*

What was learnt?

...the monitoring, collecting and the interpretation of the scientific data is important to general debate of issues that affect the general community such as air quality. STA Coordinator

Time was the most notable issue in this trial project. Organisationally the project consumed a large amount of the Local Leader's time. Following the given project timeline was also a challenge.

When working with a number of community partners the delays and hold-ups in one area of the project impact on all aspects. The regular school timetable was also a constraint, with occasions when lessons were lost to other school priorities such as camps and sports days. This meant the project extended over a greater period of time than was planned.

If a similar project was to be undertaken in the future, suggestions for addressing the time issues included:

- selection of a community issue that allowed greater student participation in the organisational phases
- selection of a community issue that required less organisation
- building additional time into the project timeline to cover for unexpected delays.

From this project experience the Local Leader recognised the ability of the students and would recommend involving them from the pre-project planning phase, starting with an initial brainstorming session.

Make sure the local council is behind the project and local businesses. Use all the agencies but make sure they don't try to hijack your project for their own political purposes. STA Coordinator

Community feedback for the Tasmanian case study

The New Norfolk Air Quality project in Tasmania aimed to raise awareness of the issues regarding air quality in New Norfolk, a mill town that had been identified as having poor air quality with a definite smoke haze. The project focussed on establishing what contributed to air quality and monitoring it. The feedback from the pre-project and post-project community interviews and letter surveys (reported fully in Chapter 8) indicate that the project was successful in raising community awareness about these issues. The percentage of interviewees who had heard about the project increased from 75% to 100% (see Table 8.8) by the post-project interview, and 82% (see Table 8.13) of the 28 letter respondents had also heard of the project. (This was the largest return of letters from a school.) Altogether, 58% of the interviewees increased their knowledge about the project (see Table 8.10), with an increase from 10% to 53% of them having a good understanding of the purpose of the project, and 90% having at least some understanding of what the project was about by the time of the post-project interview (see Table 8.9). Despite this increase in awareness of the project, there was no change in interviewees' understanding of the science behind the project (see Table 8.11). However, there was an increase in their confidence in being able to find out more about the issue if they wanted to (see Table 8.11). Of the 21 respondents to the letter survey who answered this question, 29% had a good or comprehensive understanding of what the project was about (see Table 8.14).

Table 8.6 shows an increase in the interviewees' belief that it was important for the ordinary person to know about science, and the reasons given showed an increase of 27% in the interviewees who thought that the importance depended on

people's interests (see Table 8.7). A very high rating was given in response to the question about how important it was that people knew something about the issue. The average rating given by interviewees was 4.78 on a 5-point scale, the highest in all projects (see Table 8.11). The most commonly given reason (89%, see Table 8.12) was the need for people to understand more about the science, and 56% of interviewees referred to the likelihood of detrimental effects to health if the issue were ignored. There were large changes in interviewees' opinions about why science was taught in schools. The percentage of vague responses dropped from 25% to 0% and comprehensive responses increased from 65% to 100% (see Table 8.5).

The number of respondents to the letter survey who had heard of the project (23) was large enough to consider their responses in the overall evaluation. The 21 who answered the question asking what they thought was the purpose of the project wrote about promoting community awareness (57%) and contributing to the environment (43%, see Table 8.15). Nine thought the project achieved its purpose, but 10 thought the purpose was achieved only partly, and 1 thought not (see Table 8.16). In giving their reasons, raised community awareness was the common response (77%) and general positive outcomes were noted by 31%. This project had the largest number of people (7) responding that the project had changed the way they thought about science. They referred to becoming more aware of the issue and obtaining a wider view about science (see Table 8.18).

Overall, the project was considered to have had a large effect on the community (see Table 8.19). The case study details a great number of activities undertaken in the project and suggests a comparatively high level of involvement of the community in the project, perhaps assisted by the consistent media coverage. The project will continue with the air quality monitoring equipment now in place.

Summary points

The Tasmanian trial project engaged the community from the start. First, by the selection of a real issue that would be noticed by the majority of the community and, second, by giving the community an opportunity to have a say about air quality through the very public survey distributed by *The Gazette*.

The project directly related to the health and well being of the community, this helped the success of raising awareness of the air quality issue for the community through the use of scientific data to back their arguments. STA Coordinator

Throughout the duration of the project the community were reminded of its existence by the visual icons (signs, mural, billboard, smoke haze) and the regular media updates and articles. Sometimes there were only a few lines in *The Gazette*, however the communication was two-way. The community could keep track of progress, developments and outcomes and engage in the debate, simply by reading the paper.

The fact the students played a major role in running the project made them very visible out in the community. The project was 'beyond the classroom' which generated a lot of interaction, both casual and formal, with the people of New Norfolk. With students writing many of the project articles the language was appropriate for the community rather than scientific.

The enthusiasm and dedication of the Local Leader as well as his personal approach and willingness to share the responsibility of the project with students and the community, engendered strong support from the CRC and community.

The membership of the CRC provided scope for a strong sphere of influence across the community. By having key community decision makers on the CRC, any policy, protocol or political barriers were more easily addressed.

Community feedback from the interview data and letter survey indicated the overall impact of

the Tasmanian ASTA Science Awareness Raising Project on New Norfolk community was large. The community saw the educational value for students as very high. The elements reported on in the case study that assisted in achieving this response include the level of student participation and visibility beyond the classroom, the regular media items, the support of the CRC and community and the project icons constructed in New Norfolk.

Appendix 7.5

1. In-school survey
2. Community survey
3. Community survey results
4. Student's introductory speech for the Media Launch
5. Government media statement by David Llewellyn, Minister for Primary Industries and Water and Environment
6. Student Powerpoint presentation at the Community Forum
7. Invitation to the Community Forum
8. Student speech notes for the Community Forum
9. Sample data from the New Norfolk Air Watch Station
10. Media articles
11. Project photos