



Innovative Approaches to Influencing Travel Behaviour at Schools

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Abstract

The need to reduce the growth of car driver only trips has been identified in transport strategies for Perth, Adelaide, Melbourne, Sydney and Brisbane. Increasing levels of car use in Australia's major cities is linked to environmental and social issues of concern to the community, policy makers and transport planners. One of the tools available to address this growth is travel demand management which involves working with communities to encourage many people to make small changes to the way they travel which, overall can have an enormous effect. This paper focuses on one type of community, the school community, where trips are often short and are able to be replaced by a sustainable alternative to the car. Raising awareness about the impacts of high car use and encouraging use of the travel alternatives amongst school children is a potentially valuable way of fostering both long term changes in travel behaviour and more immediate changes in the way children travel to school. Over the past 10 years the growth in car trips to schools has been most noticeable. This has led to traffic congestion and safety issues that more and more schools and local government authorities are having to grapple with. Parents often drive their kids to school because of the perceived threat to their safety. The irony is that the danger from traffic increases as more children are driven to school.

This paper looks at current trends towards parents driving their children to school, some of the contributing factors, and reports on two school based approaches being developed in Australia. The first is a TravelSmart curriculum-based approach developed in Perth to influence travel behaviour in partnership with local government. The second is a national program being developed by Smogbusters called Smogbusters Way to School. It also demonstrates that solutions can sometimes come from unexpected sources. One often underestimated source is our children. With their enthusiasm and interest in the environment they are willing to not only change their own travel behaviour and set an example for adults, but have an important influence on the travel behaviour of their parents.

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Introduction

The need to reduce the growth of car driver only trips has been identified in transport strategies for Perth, Adelaide, Melbourne, Sydney and Brisbane. The large share of travel by car and the growing number of vehicle kilometres travelled in Australia's major cities is linked to environmental and social issues of concern to the community, policy makers and transport planners. One of the tools available to address this growth is travel demand management.

Travel demand management involves influencing people's travel decisions to bring about changes in their travel behaviour. It involves working with communities to encourage many people to make small changes to the way they travel which overall can have a significant effect. The focus is on those trips where switching to an alternative mode is possible.

This paper focuses on one type of community, the school community, where trips are often short and are able to be replaced by a sustainable alternative to the car. Raising awareness about the impacts of high car use and encouraging use of the travel alternatives amongst school children is a potentially valuable way of fostering both long term changes in travel behaviour and more immediate changes in the way children travel to school.

This paper looks at current trends towards parents driving their children to school, some of the contributing factors, and reports on two school based approaches being developed in Australia. The first is a TravelSmart curriculum-based approach developed in Perth to influence travel behaviour in partnership with local government. The second is a national program being developed by Smogbusters called Smogbusters Way to School.

School trips and children's mobility

Trips to and from schools are an important part of the travel patterns in our cities. How these trips are made affects local communities and children's mobility and may influence future modal preferences.

A phenomenon of parenting in the 1990s

Traffic congestion around schools is an issue that more and more schools and local government authorities are having to grapple with. This reflects the large share of children travelling to and from school by car.

Surveys undertaken by RoadWise (1998) at 25 primary schools in metropolitan Perth (unpublished) indicate that up to 77% of children are driven to primary school in dry weather, increasing up to 95% during wet weather. A comparison with the 1986 Perth Travel Survey results (unpublished) show that the share of school trips made by car has increased from 29% in 1986 to 62% in 1998 at the expense of walking, cycling and public transport which have all declined. Figure 1 shows a 113% increase in car trips to primary schools in Perth between 1986 and 1998.

Surveys of four primary and secondary schools in Sydney's southern suburbs show that about half of all children travel there by car, ranging from 48% to 64% (Tranter 1993). Statistics available on travel patterns for Melbourne indicate that 52% of children travel to and from primary and secondary schools by car (ABS 1994)

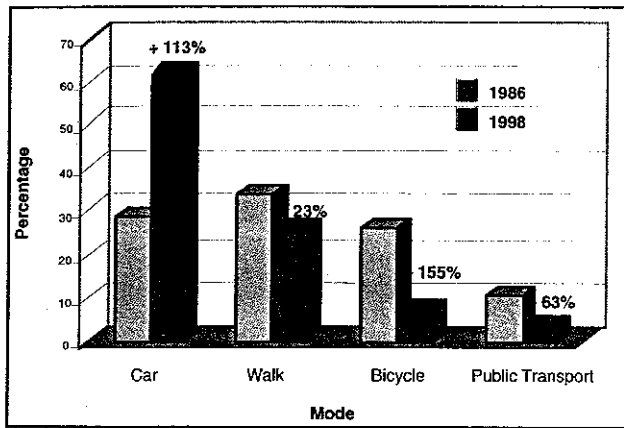


Figure 1. Mode Split for School Trips

The increase in car trips is a phenomenon of parenting trends in the 1990s that, based on Perth survey results, has emerged since the late 1980s. Prior to this it was more common for children to walk or cycle to school, often with other children in the street or with their brothers and sisters. Hillman 1990 (cited in Tranter 1995, p7-8) reports similar trends between 1971 and 1990 in a study of English school children.

Today it is not uncommon for parents to drive their kids to school even if it is only a few hundred metres. The reasons for this are many and varied but the perceived threat to the safety of their children (both from traffic & stranger danger) appears to play an important part. The irony is that the danger from traffic increases as more children are driven to school – adding to parents concerns about road safety. This is illustrated in Figure 2.

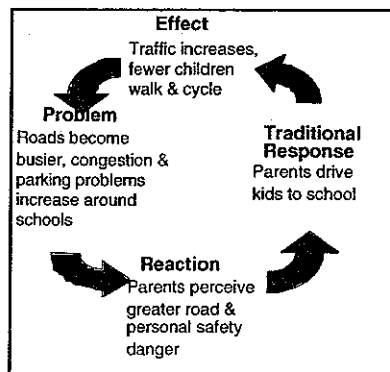


Figure 2. Cycle of Traffic Generation Around Schools

Other factors such as the journey length, which is influenced by more flexible education policies on crossing school catchment boundaries and the rationalisation of schools may play a part, as does the social conditioning of the community into the 'car culture'.

Car culture

The term 'car culture' is used by various authors to explain how the car goes well beyond its role as a mode of transport to one of image and self expression. Social conditioning of our children into the 'car culture' is already evident in the minds of children as young as seven and is well established by the time they are 13 years old (Meaton and Kingham 1998).

Many factors contribute to the social conditioning of children into the 'car culture'. Some of these include toys, role models and advertising and the media. A baby is often given soft car-like toys, progressing to a vast range of toy cars for toddlers and small children including pedal cars (even battery operated cars for the affluent), progressing to remote control cars as children get older. They often see their parents washing and looking after their car like it was another member of the family and boasting about its value giving social status and image. As they get older they are exposed to a range of images attached to the car through advertising and the movie industry ranging from power, to sexuality and aggression. The advertising industry portrays cars with happy and contented drivers moving quickly and in comfort on safe and empty roads (Evans, Smyth and Harron 1997).

If the share of travel made by car is to be reduced, and use of travel alternatives increased, it is important to target children as early as possible with education/awareness programs before they have developed modal preferences favouring car use and been conditioned to accept the 'car culture' without question.

Children's independent mobility

Not only does the traffic danger increase when children are driven to school, but children's independent mobility is eroded further. Various authors have recognised the importance of independent mobility for children for both psychological and physical development. Benefits of walking and cycling to school include the following.

- **Personal Development**

Personal, intellectual and psychological development from learning how to make responsible decisions and how to behave in different environments (including potentially unsafe environments) which enhances self-esteem (Tranter 1994) Kegerreis 1993 (cited in Tranter 1994 p 528) explains the importance of independent mobility using a case study of a child who is allowed to walk to school by himself:

"If Ben were always escorted, he simply would not have to take responsibility for himself in this way, and would not learn how to act responsibly. He could not internalise adequately, no one can, if never left alone to process the experience himself."

"A child on his own has to be making choices all the time, encountering aspects of himself he could avoid if always escorted."

"He also sees much more of the adult world, and learns about a wider range of other people and their behaviour."

- **Sense of Place**

When children are car passengers they are also denied the freedom to explore their own neighbourhood and associated sense of place. This is explained by Engwicht (1992, p 39):

"...freedom to explore the local neighbourhood... gives (children) an opportunity to develop a relationship with the placeness of their physical environment. Robbing children of a sense of place robs them of the very essence of life"

- **Play**

Walking or cycling to school is a genuine play activity in itself (de Monchaux 1981, cited in Tranter 1994, p 4). The erosion of time for genuine play is not only affected by the reluctance of parents to allow their children to walk or cycle to school but is also contributed to by parenting trends of the 1990s. Dowling and Gollner (1997) describe the concept of "good mothering" that has evolved as part of the parenting culture in the 1990's. It involves mothers taking their children to an ever-increasing array of structured extra curricular activities (eg. sport, music and dance) whatever the distance.

- **Physical and Mental Health**

Walking or cycling to school is a regular way of maintaining physical and mental health (de Monchaux 1981, cited in Tranter 1994, p 4). The British Medical Association (cited in UK Government's White Paper on the Future of Transport 1998) has warned that the effects on children's health and mental development from the way we travel could be serious. This is also recognised by the Commonwealth Department of Health and Family Services (1998). Its key strategies for "Developing an Active Australia" support the development and maintenance of safe routes to school to encourage physical activity amongst school children. It also notes that those who are less active or less fit are known to be more likely to suffer from anxiety or depression.

Managing travel demand through schools

Schools offer a potentially useful forum through which to manage travel demand. Schools generate trips which impact on local residents, albeit largely through traffic at the start and end of the school day. The traditional engineering response to congestion around schools is to provide traffic calming devices and/or larger and improved parking and drop-off areas. Whilst these measures have their place in slowing the speed of traffic and improving safety, they are often expensive and do not tackle the problem at its source.

More recent programs such as Safe Routes to Schools and Bike-Ed have been developed to encourage safer walking and cycling. Whilst these techniques remove barriers, there is little evidence that they provide the motivation required for behaviour change to occur. They are part of the solution to traffic management problems around schools but do not address the key issue - modal choice. By influencing modal choice the number and impacts of vehicle use could be tackled.

The TravelSmart to School and Smogbusters Way to School programs encourage children to think about how they travel and to find their own solutions to reducing excessive car use-effectively breaking the cycle of traffic generation around schools. This is illustrated in Figure 3. As well as easing traffic problems and reducing the environmental effects of vehicle use this approach could enhance children's individual mobility and shape future travel choices by building awareness and skills.

These programs have been trialled in Perth and Adelaide respectively. The trials and proposed broader application of the programs is outlined below.

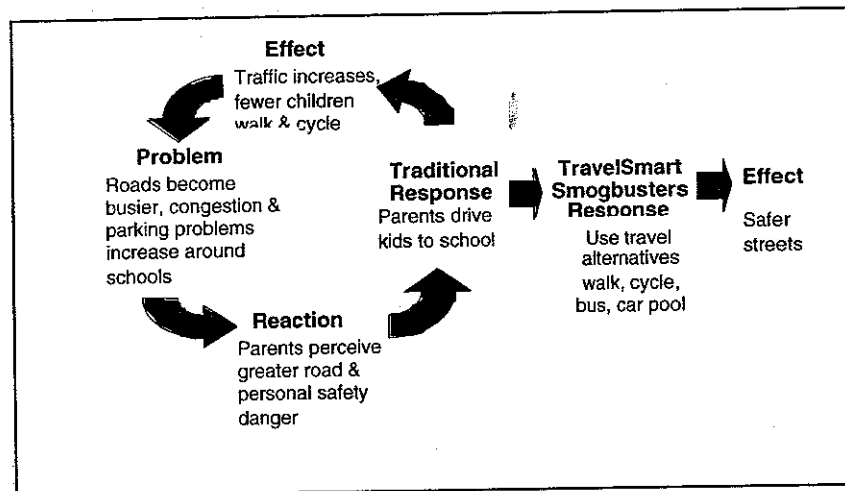


Figure 3 Breaking the Cycle of Traffic Generation Around Schools

TravelSmart to School program

The Metropolitan Transport Strategy (Department of Transport 1995) provides a strategic framework for the Perth's transport system for the next 30 years to achieve a better balance in the use of the motor car. It aims for a reduced share of trips by car as driver and greater use of travel alternatives

In pursuing the mode share targets in the strategy, Transport working with local government authorities and other agencies, has been trialing a number of programs designed to encourage people to voluntarily reduce some of their driver only car trips and to increase the use of more sustainable modes (walking, cycling, public transport and car pooling). These programs have been run under the TravelSmart brand name.

TravelSmart programs focus on travel decisions and have the overall aim of reducing car use without being prescriptive about how this should be achieved (i.e they promote the use of all of the travel alternatives).

The TravelSmart to Schools program has been developed jointly by Transport and the City of Melville and trialled at Kardinya Primary School during 1998. The purpose of the trial was to raise awareness about the impacts of high car use and to encourage children to find ways of reducing car use in their community and in particular traffic outside their school at pick-up and drop-off times.

The impetus for the trial came from several sources:

- A desire by the City of Melville to find new and innovative ways of reducing local traffic congestion and improve safety around schools. This was recognised in the City of Melville's Travel Demand Action Plan developed at the end of 1997 and translated into a TravelSmart program that involved working with a local school community. The City of Melville's Travel Demand Action Plan is effectively a local government response to achieving a more balanced transport system prescribed in the Metropolitan Transport Strategy.
- A desire by the Kardinya Primary School to improve safety and reduce traffic congestion outside the school at pick up and drop off times.
- Challenges from the 1997 Kids Helping Kids Environmental Conference. The annual Kids Helping Kids Environmental Conference is about empowering children to make environmental change and showing them that they are not powerless to start a program of environmental action. It originated from the 1992 United Nations Rio Summit on the Environment which proposed a program of action of sustainable development (Agenda 21). It also proposed that National Governments should pay more attention to the concerns and opinions of children regarding the environment. The 1997 Kids Helping Kids Conference – attended by over 100 children in Perth – recognised that we have a right to clean air. They challenged government leaders to promote the use of the travel alternatives, the community to use the alternatives and young people to set an example and encourage others to do the same.

John and Wake

What did the trial involve?

A specialist environmental educator was engaged to work with the classroom teachers and the school to develop a range of curriculum activities to run over a school term (10 weeks) for one of the year 5 classes and provide a link with the Kids Helping Kids Environmental Conference.

The coordinator reported to a Steering Committee consisting of representatives from Transport (TravelSmart and Bikewest), the City of Melville and the Conservation Council (Smogbusters).

The curriculum activities addressed how society's travel patterns have changed over time and challenged the students to think about ways of using the travel alternatives for recreation and school trips. The program is based on the idea that if children are given the opportunity to explore how car use can be reduced then they will have a sense of empowerment whilst assisting in the education of the school, parents and the wider community. The students in the classroom had not really ever considered why they went to school by car. When asked many were unsure as to why.

The following types of curriculum activities were included in the trial:

- Research of how travel (particularly to school) has changed over the past 100 years in Perth. This included stories by local author Tom Hungerford about growing up in the South Perth area that capture adventures on the way to school during the 1930s. Other research included following the life of a lemon through to the production of lemon cordial focusing on energy, resources and transport.
- Mapping the route each student took to school and measuring the distance to school.
- A classroom survey (using a travel diary over one week) to find out how the children travelled to school.
- Making Father's Day cards to encourage family outings using alternative forms of transport.
- A "magical mystery tour" as a classroom excursion for which the children used as many alternative forms of transport as possible (bus, train, ferry, walk, car pool). It is interesting to note that many of the children had not used at least one form of public transport previously. Also most had not used a multi-rider ticket previously.
- "TravelSmart to School Week" where the children, with assistance from their parents, used alternative means to get to and from school. This was planned by the classroom with the assistance of the school's Parents and Citizens Association (P&C) and the Steering Committee to ensure safety was adequately addressed. A second survey was undertaken during this week to measure success.

The children's involvement in planning these activities led to a high level of ownership, participation and parent support.

Supporting infrastructure and programs

A major barrier to breaking out of the cycle of traffic generation around schools is concern for children's safety. It is essential that this is properly addressed. The children at Kardinya Primary School set their own rules for road safety and stranger danger (i.e. walk with a friend, wear bike helmet, wear bright clothing in wet weather) and were supported by their parents walking with them to school.

The "TravelSmart to School Week" is also reliant upon supporting programs, and infrastructure where necessary. This includes Safe Routes to School, supported with appropriate traffic calming and safe road crossing points as well as appropriate bike education from the Police Bike-Ed Unit and/or the Bikewest vacation program. The Kardinya Primary School has a Safe Routes to School Program and the Police Bike-Ed Unit had recently run a bike education program at the school.

Results

As a part of the curriculum activities the children conducted two travel surveys, the first before the "TravelSmart to School Week" and the second during the "TravelSmart to School Week". The behaviour change achieved is shown in Figure 4.

Over the week the classroom reduced car trips to/from the school by 22% (38 less car trips). This was more than double the target of 10% set by the classroom. Most of these trips were transferred to walking which increased by 118% (39 trips). Cycling remained constant and public transport increased by 6% (1 trip).

The Principal and President of the P&C noted that they believed the number of cars arriving to drop-off and pick-up students was significantly reduced during the "TravelSmart to School Week".

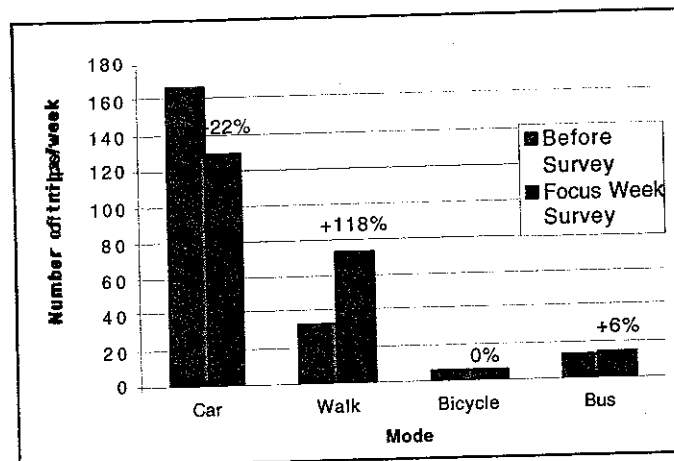


Figure 4 TravelSmart to School Week - Mode Split

John and Wake

Other effects of the program include the following:

- Health benefits to parents who supported their children by escorting them to/from school on foot.
- At least two teachers in the school car pooled during the "TravelSmart to School Week".
- One boy reported that he caught the train to a football game with his dad and another reported that they walked to the local shop rather than taking the car.
- A total of six students in the year 5 class were previously unaware that they lived on a school bus route, that provides direct access to the school
- Kardinya Primary School has integrated the TravelSmart to School curriculum activities into its policy to be run as an integral part of its curriculum activities for year 5 students each year.

The results of the TravelSmart to School program were presented by two students from the year 5 class (with the assistance of their teachers) at the 1998 Kids Helping Kids Environmental Conference at Fairbridge. The show-casing of the program results at the conference raised awareness amongst other students and teachers about what can be achieved in a school community. As a result, a total of five youth challenges that relate to car travel and other travel issues were set at the 1998 conference.

Larger scale application

The successful results of this TravelSmart school-based education program supports its application in other primary schools. An integrated resource pack has been developed and contains the ten most successful activities designed to run over ten weeks, culminating in a "TravelSmart to School Week". It will be tested in a number of primary schools during 1999 and linked to the Kids Helping Kids Conference.

The aims of the resource pack are to:

- Develop an integrated education program for children in years 5 to 7 that highlights how our daily travel routines can affect the quality of our environment
- Help classroom teachers work with the school, parent community and stakeholder groups to address the issue of increasing car use to transport children to school and associated impacts such as air pollution and traffic congestion around schools.
- Focus on how children can influence travel patterns to and from school
- Develop a "TravelSmart to School Week" to highlight simple practical ways of reducing the number of cars that travel to and from school in the morning and afternoon delivery and pick-up times.

The package is suitable for years 5 to 7 and aims to give a number of ideas and activities linked to the curriculum that can be easily developed as a thematic program. It has been designed to fit with subject areas so that themes of work can be developed over a number of weeks, dependent on teacher and student interest in the topic. The resource pack also includes relevant resource contacts and covers how safety issues should be addressed.

Lessons learnt

A number of lessons can be learnt from the trial. These include the following:

- The trial demonstrates that children with their high levels of enthusiasm and interest in the environment are willing to change their own travel behaviour and set an example for and influence travel behaviour of their parents and the school community. This suggests that there is considerable value in maintaining a strong environmental link between the TravelSmart to School Program, and the Kids Helping Kids Environmental Conference and continuing to run the TravelSmart program as a "Green Teams Project".
- Allowing children to participate in the development their own curriculum activities with the assistance and support of their teachers and others increases ownership and the potential for change in travel behaviour.
- The formation of a multi-agency steering committee provides a valuable role by providing resources for the project, addressing safety issues and ensuring the program has the capacity to be on-going.
- Parents are more inclined to support their children by assisting them to find safe alternative ways of travelling to school where this is developed out of classroom curriculum activities rather than imposed by the school or a State or local government authority.
- Teachers need the support of a coordinator, to explain how the program works and assist in running some of the classroom activities. Also, instructions on classroom activities need to be very clear for teachers.
- Whilst it was intended that other classrooms at the school participate in the TravelSmart to School Week, the absence of someone willing to coordinate teachers across the school limited the school's involvement outside of the year 5 class.
- A media event at the school attended by the Minister for Transport and other dignitaries, whilst attracting community attention, was also a distraction to the program due to the time and effort required. As primary schools are generally not well equipped to organise such events it may be better to keep them less formal and lower profile.
- Whilst cycle trips remained constant, factors such as the student's age (year 5) and the school being surrounded by a number of busy roads are likely to have had a bearing on this result. Further trialing/assessment of the potential to increase cycling in other schools, particularly in years 6 and 7 is considered worth while.

John and Wake

- Follow-up surveys are necessary to measure whether changes in travel behaviour are sustained beyond the "TravelSmart to School Week". If the behaviour change is not sustained the program should be developed further to find ways of sustaining the reduction in car use (e.g. promotional activities, forming a walking bus).

Smogbusters Way to School program

Smogbusters is a community education initiative promoting transport solutions to urban air pollution and greenhouse gas emissions. It involves the Conservation Councils, which are peak community environment groups, in Queensland, New South Wales, Victoria, South Australia and Western Australia and the Commonwealth Government, through Environment Australia. It is funded by the Natural Heritage Trust.

Smogbusters seeks to raise awareness and effect positive change by working with the community. The use of travel alternatives has been promoted as a way by which everybody can be a 'Smogbuster'.

Schools are seen as an important forum for doing this. To promote understanding of the links between transport, air quality and global warming and involve schools in practical efforts to reduce vehicle emissions the Smogbusters Way to School project was developed.

Adelaide trial

Smogbusters Way to School (SWIS) was trialled in Adelaide. Primary schools were invited to take part in the project. The focus of the project was the SWIS Day when children were encouraged to reduce car use for their journey to school. This was supported by a resource package developed for schools, including material for use in a classroom setting to explore and discuss transport and its environmental impacts before the day.

The package included:

- Reading material on urban transport and its associated air pollution and greenhouse gas emissions
- Classroom activities with a transport and air quality theme
- Worksheet for children to record how they travel to school
- Tally sheet for recording class travel statistics
- Information about the project for parents.

The culmination of the project was the SWIS Day, which sought to turn student's environmental awareness into practical action to reduce vehicle trips.

Results of the trial

Nine primary schools across metropolitan Adelaide took part in the project trial. The number of classes involved varied between schools, with a total of about 2,500 students participating. Feedback showed that the use of the resource material depended on teacher interest. Some classes engaged in discussions, poetry writing and artwork to explore the transport issue.

A week before SWIS Day students filled in a questionnaire about how they got to school, including the mode used and the estimated distance travelled. Across the nine schools the majority of students arrived at school in a car, despite many living relatively closeby. This information provided the baseline against which to measure the change achieved on the day.

SWIS Day was May 21, 1998. Students recorded how they got to school, including distance travelled. Comparison of the results with those from the week before showed that vehicle kilometres travelled declined and the share of travel by walking, cycling and public transport increased.

The reduction in car travel was estimated to be 1,047 kilometres. This figure was used to calculate approximate reduction in emissions of carbon dioxide and air pollutants. Emissions rates used were conservative, assuming a 1.6 litre petrol vehicle for carbon dioxide emissions and assuming current vehicle emissions standards for key air pollutants were met by all vehicles (information sourced from Environment Australia). The most significant result was a saving of 210 kilograms of carbon dioxide emissions. This was achieved by 27 % of students changing to a greener travel mode on the day, making for an average reduction of about 1.5 kilometres of car travel each.

The tallying of figures from the participating schools was done by students at Black Forest Primary School.

The trial generated positive coverage in local and state media, important in taking the Smogbusters message to the wider community and reinforcing the positive behaviour by students on the day. Feedback from teachers indicated that it was a useful exercise in raising awareness and showing that greater use of travel alternatives, and less use of cars, was possible for school trips. In a regional context the reduction in vehicle kilometres travelled and emissions was small, however the real value of the day was in demonstrating that cleaner travel choices were possible.

Wider application

The positive feedback and results of the SWIS trial in Adelaide has led to development of a national project to engage school communities in promoting travel alternatives.

A resource package has been prepared with information for teachers and students, class activity suggestions and advice on planning and using travel alternatives for school trips.

John and Wake

The resource material covers a range of learning areas and allows teachers flexibility in applying it in their teaching programs.

Activities include:

- Hold a Smogbusters Way to School Day to encourage use of green modes. Use survey forms for individual students and classes to record travel patterns (mode and distance) before and on the day
- Plan a school outing involving walking, cycling or public transport
- Collect and discuss news articles on transport issues.
- List the effects on vehicle emissions on our health.
- Walk around the school, identify how walking to and from school could be made easier

The SWTS package is being promoted for use in primary schools in Brisbane, Sydney, Melbourne, Adelaide and Perth. It can be supplemented with additional resources and activities available from Conservation Councils to extend the educational benefits of class participation.

Smogbusters Way to School differs from the TravelSmart to School program in that it does not involve a comprehensive curriculum approach rather it offers awareness raising and participatory activities which can be integrated with other work. It is one way Smogbusters is encouraging people to consider the implications of their travel choices and use alternatives to the car where possible.

Conclusion

This paper demonstrates how new and different approaches to resolving traffic issues at schools can be integrated with and builds upon traditional engineering solutions as well as Safe Routes to Schools and Bike Ed programs. It also demonstrates that solutions can sometimes come from unexpected sources.

One often under-estimated source is our children. They can have a valuable contribution to make in coming up with innovative solutions to promote the use of sustainable travel alternatives. These programs harness children's interest in the environment to raise awareness of the impacts of high car use, the travel alternatives available and promote changes in travel behaviour.

The experience and lessons learnt from the TravelSmart and Smogbusters programs will be an important addition to the knowledge of behaviour change in Australia.

Travel behaviour change programs can be integrated with infrastructure such as traffic calming devices and provision of safe walk and cycle routes and road safety skills training to manage travel demand associated with schools. The greatest benefit may well be in the future, when children can apply the knowledge and experiences in future travel choices.

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References

- Active Australia (1998) *Developing an Active Australia: A framework for action for physical activity and health*. Canberra: Commonwealth Department of Health and Family Services
- Australian Bureau of Statistics (1995) *Travel to Work, School and Shops, Victoria, October 1994*. Catalogue No 9201.2
- James, B (1998) Changing Travel Behaviour Through Individualised Marketing: Application and Lessons from South Perth, pp 635-647 of *Papers of the 22nd Australasian Transport Research Forum*. Sydney: ATRF
- British Medical Association (1997) *Road Transport and Health*. London
- Department of Transport, Main Roads WA, Ministry for Planning, Fremantle Port Authority, Westrail and Metrobus (1995) *Metropolitan Transport Strategy*. Perth: Department of Transport
- Department of the Environment, Transport and the Regions (1998) *A New Deal For Transport: Better For Transport: The Government's White Paper on the Future of Transport*. London
- Dowling, R and Gollner, A (1997) Women and Transport: from Transport Disadvantage to Mobility Through the Motor Vehicle, pp 337-353 of *Papers of the 21st Australasian Transport Research Forum*. Adelaide: ATRF
- Evans, DS, Smyth, AW and Harron, RJ (1997) Implications of a Car Culture for the Development of Sustainable Highway Transport, pp 123-130 of *Papers of the 30th International Symposium on Automotive Technology and Automation*
- Engwicht, D (1992) *Towards an Eco-City: Calming the Traffic*. Sydney: Envirobook
- Meaton, J and Kingham, S (1998) Children's Perceptions of Transport Modes: car culture in the classroom? *World Transport Policy and Practice* 4(2) pp 12-16
- RoadWise (1994 as revised) *Safe Routes to Schools Kit*. Perth: WA Municipal Association
- Seymour-Rolls, J and Hughes, I (1996) *Participatory Action Research: Getting the Job Done*. University of Sydney, Faculty of Health Sciences website - <http://www.cchs.su.edu.au>

John and Wake

Tranter, P (1993) Children's independent mobility data for Sutherland schools, Sydney
Unpublished, University of NSW

Tranter, P (1994) A Child Friendly Focus for Transport Reform: children's travel freedoms and urban form, pp 517-538 of *Papers of the 18th Australasian Transport Research Forum* Melbourne:ATRF

Tranter, P (1995) Children's Independent Mobility and Urban Form in Australasian, English and German Cities Paper to 7th World Conference on Transport Research, Sydney