TravelSmart Workplace: Walking & the Journey to Work

Catherine Baudains, Irene Styles, Peter Dingle

Abstract

The TravelSmart Workplace program aims to increase the use of alternatives to the single occupant vehicle by commuters in order to reduce vehicle emissions and traffic congestion in the Perth, the capital city of Western Australia. This paper focuses on the way in which workplace-based education programs can promote walking as part of the journey to work. Two types of intervention were been trialed in workplaces in the Perth central area during 1999. Changes in the percentage of employees including walking as part of their journey to work are examined using quantitative and qualitative data collected during the interventions. The relative effectiveness of the different intervention strategies is discussed.

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Introduction

The TravelSmart Workplace program aims to increase the use of alternatives to the single occupant vehicle by commuters in order to reduce vehicle emissions and traffic congestion in the Perth central business district (CBD). This paper focuses on the way in which workplace based education programs can promote walking as part of the journey to work, by examining changes in the percentage of employees including walking as part of their journey to work in the light of quantitative and qualitative data collected during workplace interventions.

In recent times air pollution in Perth and one of its main causes, traffic congestion and motor vehicle dependency, have entered the public arena and been the focus of much attention by the State Government. Air pollution is becoming a serious issue in Perth (Department of Environmental Protection 2000). In summer the city suffers high levels of photochemical smog, and in winter high levels of haze are common. Recent medical research has concluded that high pollution days in Perth can be linked to increased admissions to hospital for people suffering respiratory problems (Department of Environmental Protection 2000). Motor vehicle emissions contribute as much as fifty per cent of some of the pollutants that cause these air quality problems (Department of Environmental Protection 1996). As a result, reductions in these emissions are an important environmental focus.

There are three main approaches that can be used to address the issues of air pollution and motor vehicle emissions, and the ideal situation would integrate strategies from each area.

- Technical approaches, for example: new vehicle emission control technology, improvements of existing technology and decrease age of fleet, use of alternative fuels.
- Land use planning and design, for example : improvement of infrastructure; improvement of services; restrictive parking regulations; law enforcement restricting vehicle use; and,
- Encouraging voluntary individual behaviour change.

The third approach, encouraging individual behaviour change, is the focus of much current transport research.

Department of Transport figures show that 65% of the 85000 Perth commuters drive to work each day, and almost 9 out of 10 cars entering and leaving the Perth central area have only one occupant (Transport 2000). Research indicates that 26% of Perth commuters have contemplated changing transport modes (Marshall 1998). Ten to twenty percent of Perth's commuters do not face major barriers to transport change such as a lack of available public transport, limited shower or change facilities for walking or

cycling, or live outside suitable walking or cycling distance to work. In most cases people drive simply out of habit or a misunderstanding of time or convenience issues. For many people in this group (those living close to work or with good access to public transport) travel alternatives may be quicker, more convenient, safer, healthier and cheaper (Marshall 1998). Research and work being done internationally suggests that it is possible to change the behaviour of this latter group of commuters using a range of marketing and educational approaches which target them with positive messages about alternatives to the single occupant vehicle (SOV) (Oborne and Levis 1980; Steg 1999; Zelezny 1999). If use of alternatives to the single occupant vehicle such as walking can be increased for the journey to work, there will be a reduction in SOV commute trips, resulting in reduced vehicle emissions and reduced traffic congestion.

TravelSmart Workplace is an ongoing research based initiative which aims to reduce the level of SOV use in Perth CBD workplaces. The workplace initiative was developed jointly between the Department of Environmental Protection (DEP) and the Department of Transport in 1996/97 and is currently being co-ordinated by the DEP in conjunction with a local university (Murdoch University Western Australia) research program. Each year the TravelSmart Workplace programs have contained a number of periods of activity, with four of these periods devoted to promoting specific travel alternatives including walking. The other periods of activity concerned organisation, preparation and evaluation.

Walking as a commuter transport mode

Increasing the use of walking as a mode of transport for commuters has many benefits to the individual, community and the environment. Organisations in Australia such as the Heart Foundation, Ministry of Sport and Recreation, and the Health Department of Western Australia have long recognised the importance of daily physical activity. Including walking into a daily routine has benefits to the individual such as improved health and longevity, increased stamina and improved positive mental attitude (Ministry of Sport and Recreation 1999). More recently, governments have recognised the importance of encouraging a physically active community and providing resources to allow for a more 'Walk Friendly' environment (Ministry of Sport and Recreation 1999).

In 2000 the Department of Transport published Perth Walking: The Metropolitan Region Pedestrian Strategy, as part of an ongoing series describing the governments vision, policies, strategies and plans for a totally integrated transport system for Western Australians (Transport 2000). This document reported that 99% of people believe that walking improved health and fitness and 78% of these people said they would walk more if encouraged to do so. Despite these positive figures only a small proportion of trips in the Perth area are made by walking (Transport 2000).

Attitude, Behaviour and Learning.

One of the interesting points to note here is that there has long been a recognised inconsistency between behavioural intention and actual behaviour. Individuals with high positive environmental attitudes who indicate they intend to participate or complete a particular activity, often report a lower level of actual behaviour (Styles 1993; Andrich 1998).

One explanation of this phenomenon is the higher level of difficulty associated with action as opposed to professed attitude (Styles 1993; Andrich 1998). No matter how positive an individual is about particular behaviours, if there are significant external and or internal barriers to completing the behaviour, its incidence will be lower than the individual may expected.

Learning (behaviour change) is known to be more effective if the learner is self regulated, that is, aware and in control of their own learning (Boulton-Lewis 1996). Self regulated learning has been described as "the way learners select and articulate their goals for learning and understand and manage the learning process in order to achieve these, and includes motivational, attitudinal, strategic, and metacognitive components," (Radloff 1997). A characteristic of adults who are self regulated learners is that they make a conscious effort to address the situation and attempt to reduce the influence of those barriers on their behaviour. They can be very determined to achieve their goals. They are able to assess circumstances, isolate the areas they can have some influence on, and remove themselves from the influence of some barriers.

It has been observed that few adults are self regulated learners . As a result, they need to be provided with opportunities to reflect on their beliefs, goals and knowledge in order to develop new understandings which may result in changed behaviour. This perspective on adult learning and behaviour can be utilised in a workplace situation where the aim is to educate for behaviour change. The next section of this paper describes a program which is based on these principles and is part of a larger ongoing study of transport behaviour change.

Methodology

The 1999 TravelSmart Workplace initiative involved eight workplaces and approximately 2000 employees. Two different programs were implemented and workplace types were matched as closely as possible to maintain fairness of comparison. Of the original eight workplaces, one dropped out early in the program due to restructuring and a large number of redundancies, and another did not return any completed second questionnaires so quantified measurement of change was impossible. The remaining six workplaces consisted of two government workplaces, two engineering workplaces, one accounting/ stock exchange firm, and one health/medical research workplace (see Table 1 below). Four of these workplaces completed he second type of intervention and two completed the first type of intervention.

Table 1. Summary of participating workplaces and treatment type.

Intervention 1 Workplaces		**Intervention 2 Workplaces**	
Code	**Description**	**Code**	**Description**
7	Government	2	Government
1	Engineering	3	Engineering
4	Marketing (withdrew)	6	Accounting/ Stockbroking
8	Engineering (withdrew	5	Health/ Medical Research

The two programs (or interventions) each contained the same basic structure with a pre-intervention stage (recruitment, benchmark survey), intervention (introduction, four green transport promotion periods) and post intervention (program conclusion, second survey). The four periods of green transport promotion in both intervention involved participants the most, but planned activities such as guest speakers and workshops were

scheduled over the lunch hour in order to avoid using employees' work time. The way in which information was communicated message was an important aspect of the interventions. The co-ordinator aimed to create a feeling of value - that employees' choices were valued because their contribution to air quality was significant. We aimed to avoid provoking any negative feelings of guilt or defensiveness which may have been associated with the challenge to participants' current behaviour. The two different interventions are outlined below.

Intervention 1 provided individuals with information through a display of posters, guest speakers and publications, which were usually distributed through the workplaces' internal mail. The motivation to read the information, attend sessions, and learn about green transport options was left to the employee. There was no additional support provided and there were no other incentives provided. Intervention 1 aims to increase knowledge in the expectation that the desired behaviour will increase. The intervention assumes that the employees are very self regulated learners.

Intervention 2 provided the same information as in intervention 1, but also provided a volunteer environmental leader in the workplace for three hours each week during the entire program. The environmental leader could help the employee by gathering information specific to their situation and bringing it to the workplace, and supported the employees in their efforts to examine and reflect on their current transport behaviour. This provided individuals with the opportunity to address their transport concerns and issues with support the environmental leader and encouraged discussion of the barriers to changes in behaviour. Intervention 2 provides additional opportunities for individuals to reflect and explore their own behaviour and identify the benefits of a change in behaviour. It also encourages participants to take control of barriers impacting their behaviour in order to overcome those obstacles. This encourages the use of strategies such as reflection and goal setting which are common in self regulated learners.

Walking was promoted in both interventions using the same four main messages:

- Health benefits: For example, as shown by the Cycle 100 program (Department of Environmental Protection 2000), also promoted through Heart Foundation and Ministry of Sport and Recreation. Health benefits can include weight loss, increased cardiovascular fitness and stamina, a feeling of general health and well being.
- Financial benefits: For example, the average person in Perth spends $100 dollars a week on transport - walking is free. Encouraging participants to calculate the actual financial benefits per year of including walking and other alternative transports into their daily commute trip for some or all of the trips per week was a major focus.
- Social benefits: For example, increased time spent in the outside environment has often resulted in a feeling of wellness or well being and development of more active communities (Ministry of Sport and Recreation 1999).
- Environmental Benefits: For example, the impact individual choices have on the environment, and the value of individual contributions.

Data Collection

A case study approach was used in order to utilise all the data collection methods most effectively. The quantitative data used in this study were collected using a pre and post intervention questionnaire. The questionnaire was based on a survey designed for a trial

program by Marshall (1997). The questionnaire included scales assessing knowledge, attitude, self efficacy, behavioural intention, and transport behaviour in terms of environmental, air quality, and transport issues. The second questionnaire also included a small section on evaluation. The pre intervention questionnaires were distributed through the internal mail, and the second questionnaires were mailed only to those who returned the first questionnaire.

Qualitative data were collected from weekly volunteer debriefings, focus groups and feedback collected during the program from employees, but has not yet been analysed. In the next section a subset of results from the larger travel behaviour study, relevant to walking behaviour, is presented.

Results

The preliminary results of this study indicate that sustainable transport behaviour can be increased by providing individuals with information relevant to them and their specific situation as well as opportunities to learn and engage with the information on a personal level.

Level of change

The following results are calculated from a matched sample of the 316 participants from 6 workplaces who returned both the first questionnaire and the second questionnaire. The samples are considered to be representative of the entire workplace.

The overall result of the interventions (type 1 and 2 together) was an increase in walking trips of 1.36% (see figure 1: All), with changes in each workplace ranging from -0.82% to 3.59% (see figure 1: 1, 2, 3, 5, 6, and 7).

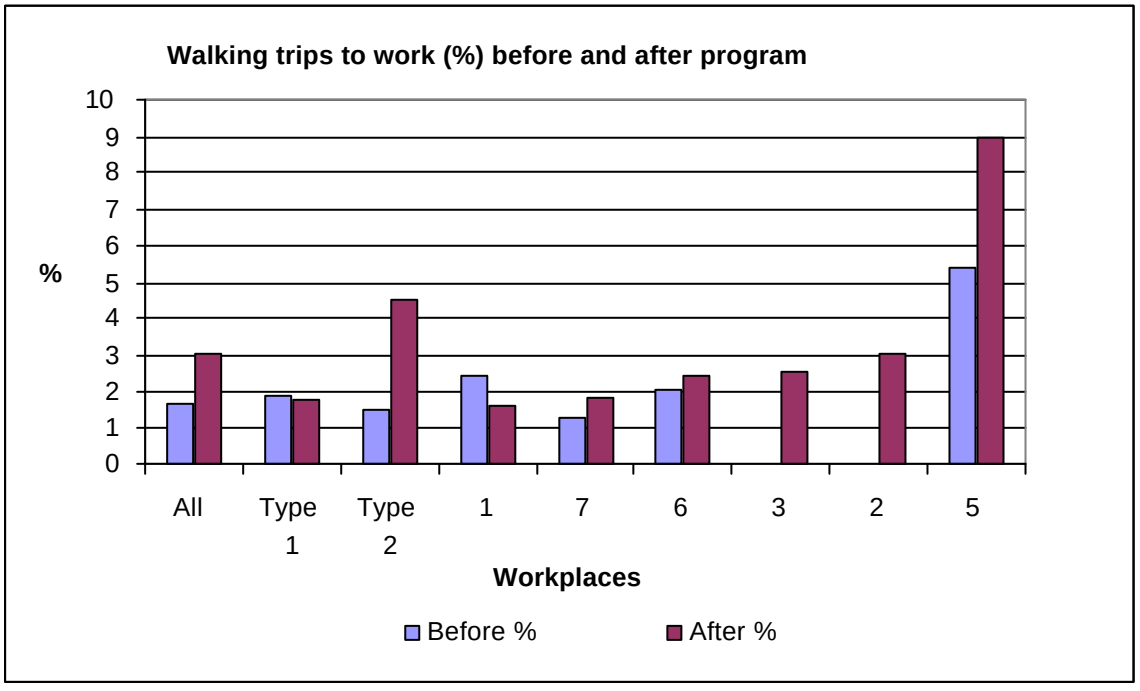

Figure 1. Changes in percentage of walking trips

The level of increase in trips varied between workplace and intervention type. The type two (Environmental leadership) intervention achieved much more change overall (2.96%) than the type 1 intervention (-0.13%). Workplaces 3, 2 and 5, which participated in the environmental leadership intervention, all showed a greater percentage increase in walking than workplaces 1, 6 and 7, which participated in the information only intervention.

The case study based methodology for this study also allowed the comparison of different workplace types. Type 2 interventions were always more effective than type 1 interventions when comparing the same type of workplace. Individual workplaces also exhibited different levels of change depending on a number of factors. Thus, change in behaviour seems to be mediated by organisational structures and workplace culture as well as type of intervention.

For example, workplace 1 showed a negative change, in other words a decrease in the number of walking trips. This could be attributed to the low level of participation in organised activities, the type of volunteer, the structure of the workplace and/or the limited administrative and managerial support for the program within the workplace. An example of this was the reluctance of the main contact person to hold a free breakfast (provided by the DEP) at the conclusion of the program. The participation of this workplace as a whole was limited by the lack of enthusiasm or concern of the main contact. The material was sometimes not distributed and promotion often did not occur, and when it did, it was to a much lesser extent than in other workplaces.

For both workplace 1 and 7, as participants in intervention 1, the responsibility for forwarding information and encouraging participation lay with the workplace. Unlike workplace 1, workplace 7 was extremely enthusiastic from the beginning of the program and the human resources section was very motivated in getting employees involved and distributing information. The result suggests that the positive change in workplace 7 compared with the negative change in workplace 1 could be due to the higher level of environmental leadership already existing within the workplace, as well as the different organisational structure.

Workplace 3, like workplace 1 was an engineering organisation and the structure of the workplace was very similar. Employees had little spare time to focus on issues other than those directly involved in their work. As a participant in the type 2 intervention, a volunteer environmental leader was able to spend short amounts of time with employees in workplace 3 who wished to ask questions or work through transport solutions for their situation. The environmental leader was able to take information directly to the employees rather than rely on one workplace contact person for distribution, or the employees to read written material received in their mail. Attendance at workshops and guest speakers was always higher in workplace 3 than workplace 1. The presence of an environmental leader encouraged participation in the program.

Workplace 5, which participated in intervention 2, was an outward looking, health research organisation, which placed a high priority on employee health and well being. While the physical structure of the workplace actually created many problems for the running of the program and the interaction with the volunteer, the general focus of the workplace meant that the employees were more open to messages regarding health and well being. The volunteer at this workplace reported an extremely varied response from

employees ranging from very positive and enthusiastic, to aggressive or defensive during any interaction or passing on of information.

Workplace 6 achieved the lowest level of change of all the workplaces participating in the type 2 intervention. This was expected as problems developed from the environmental leader's overly passionate approach to the employees within the workplace. Employees were reported as feeling uncomfortable or threatened. In addition the workplace moved location in the middle of the program, so the program was disrupted as employees were having to deal with a great number of changes already.

Reasons people chose walking

Respondents were asked to label four reasons for their current choice of transport in order of importance. Table 2 shows percentage of first, second, third and fourth preference for each alternative given in the questionnaire, for the sample of respondents who were including walking in their journey to work. Results are for the entire matched sample (type 1 & 2 interventions together) for the pre-intervention questionnaire, and for the post intervention questionnaire.

Table 2. Respondents main reasons for choosing to commute by walking

Reasons	1999 Pre intervention				1999 Post intervention			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Exercise	14%	26%	14%	9%	52%	26%	4%	4%
Enjoyment	20%	14%	6%	11%	17%	26%	9%	9%
Convenience	6%	26%	-	11%	4%	17%	26%	-
Comfort	3%	6%	9%	6%	4%	9%	22%	26%
Cost	3%	-	3%	3%	-	-	4%	-
Length of time	-	3%	9%	-	4%	-	-	-
Environmental concerns	9%	9%	9%	-	-	9%	13%	9%
Access to cheap/free parking	-	-	6%	-	-	-	-	13%
No car available	-	3%	14%	9%	-	4%	9%	4%
Car needed for work purposes	9%	-	-	-	4%	4%	-	4%
Run Errands (lunch/after work)	-	-	-	-	-	-	-	-
Live close to work	31%	3%	17%	9%	13%	4%	4%	4%
Other reasons	-	-	-	-	-	-	-	4%

The results show that exercise was a more important motivator after the interventions, as the percentage of individuals who chose exercise as the main reason for walking to work more than doubled. Enjoyment also increased in importance as a motivator after the intervention.

The percentage of walkers choosing 'Live close to work' decreased after the intervention. At the beginning of the program it was the main reason for 31% of employees, but after the intervention it dropped to 13%. This suggests that for the participants who took up walking during the program, distance was not a significant barrier.

Convenience featured quite strongly in the third and fourth preference, but factors such as comfort, cost, length of time and no car available did not rank as highly as might

have been expected. Interestingly, health was a bigger motivator for participants than cost, or saving money.

Summary

The program achieved an increase in walking overall as an average of all participants in all workplaces across both intervention types. A reduction in the use of single occupant vehicles was achieved.

The environmental leader emphasised and valued the employees problems and issues but encouraged them to try and find a way to include green transport on just one more day a week or fortnight. The volunteer could 'manage' the tone of the information so that it was not threatening to the individual, and could draw the focus away from any feelings of guilt which many individuals expressed.

These results suggest that while the traditional method of educating individuals to encourage behaviour change through passing on information can be successful, the success is increased with the addition of meaningful and relevant interaction with an environmental leader. The addition of such a minimal level of personal support (1 person, 3hrs per week for the whole workplace) to half of the workplaces resulted in a greater level of increase in walking behaviour.

Once behaviour has begun to change, the expectation is that personal motivation will take over, that is, the initial motivator may be different from the long term motivator. In the end the individual has to take responsibility for maintaining behaviour change. It is the researchers' impression that once behaviour change began participants saw other benefits and decided to maintain their new behaviour. For example, although financial savings seemed to be the initial trigger for considering a change in transport behaviour, health and exercise and lifestyle were often the longer-term goals for participants who had committed to 'green' transport.

Implications

The results of this study suggest that educational and behaviour change approaches which maintain a level of individual personal contact are more likely to achieve the outcomes hoped for. The issues which arise for the co-ordination of such programs include the effectiveness of the environmental leader's approach which in this study depended on the volunteers' previous experience and the personal characteristics they brought to the workplace.

There is a need to address the internal barriers individuals experience when they are making decisions about transport. While there are many reasons why individuals may not be able to include walking as a part of their journey to work, there are also many reasons why individuals would benefit from such a choice, even if it was only one or two days a week. Passing this information on in a way which best encourages individuals to identify with the message and internalise its meaning is the challenge. Furthermore, if individuals can be empowered to the extent where they are willing to begin addressing some of the external barriers (eg distance, time, managing other transport requirements) then behaviour change may be even more significant.

The monitoring and training of environmental leaders is important as personal communication increases effectiveness. The approach of an environmental leader needs to avoid being overpowering or threatening, and should focus on the good/positive experiences and start at the level of the individual's current experiences. The environmental leadership program requires a higher use of resources in person hours, but the results are better and therefore may justify the deployment of additional resources.

Conclusion

Walking can successfully be integrated into the journey to work by either encouraging use of mixed mode (walk and carpool, walk and bus/train) or providing specific information and encouragement to those individuals who live within a reasonable walking distance to work. An increase in the number of individuals walking to work will have positive impacts on both the quality of our air and the development of a dynamic and physically active community.

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