

More people cycling more often- commuter cycle training in TravelSmart workplaces

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Abstract

In 2011, the TravelSmart Workplace program (Department of Environment and Conservation and Department of Transport) and the City of Perth partnered to trial cycle training as a means of increasing cycle commuting amongst people working in the city.

Three training courses were delivered to employees of four workplaces. The courses consisted of a one hour theory session, a two hour practical skills session, a two hour guided ride and a one hour social ride. Participants were encouraged to attend every session and asked to complete surveys before, immediately after and four months after their course to assess the impact of the training on participants' perceptions and behaviour.

Key results from the trial:

- Participants cycled to work more after cycle training. Before the cycle training, 11 per cent of participants were cycling one day or more per week whereas four months after the training, 54 per cent were doing so.
- Training increased the confidence of participants to cycle in traffic. Before the course some 85 per cent of participants felt either 'not confident' or only 'a little confident' about cycling on road in traffic. Four months after the course 36 per cent of participants felt either 'not confident' or only 'a little confident' about riding on road in traffic, whereas 55 per cent of participants declared being 'quite confident'.

This paper will provide a background to cycle commuting in WA and outline how cycle training has been used elsewhere in Australia and overseas, considering the impact of these programs on cycling uptake and frequency. Following this the results, insights and participant stories from the 2011 trial as well as details of additional training delivered in 2012 will be considered. Discussion is centred on the potential of cycle training as one strategy to increase cycling commuting in Perth.

1. Introduction

Australians have shown an inherent interest in cycling. Since 2001, Australians have purchased more bicycles than cars, with bicycle sales 128% greater than motor vehicle sales in 2010 (Cycling Promotion Fund, 2011). The rise in the number of Australians purchasing bicycles has been accompanied by an increase in cycling participation. An analysis of the Australian Sports Commission Exercise Recreation and Sport Survey

(ERASS) (2010) reveals that cycling is Australia's fourth most popular physical activity for adults.

In spite of this popularity, currently only one per cent of commute trips in metropolitan Perth are made by bicycle (ABS, 2006). It is thought that many more people could cycle to work or to a train station en route to work some days/week, but don't, in part due to perceived or actual safety concerns and a range of other factors and barriers (Scott and Span, 2009).

The TravelSmart Workplace (TSW) program (A joint initiative of the Department of Environment and Conservation and Department of Transport) is one of a number of initiatives by the state government to address car use and its impacts (air pollution, climate change, traffic congestion, physical inactivity). The TravelSmart Workplace program engages workplaces (primarily in metropolitan Perth) in managing the travel they generate. The program assists employers and site managers to understand work-related travel and take practical measures to shift trips from driving alone to more sustainable alternatives. The main mechanism for doing this is through a travel plan. A travel plan is a package of actions implemented to manage travel generated by the workplace.

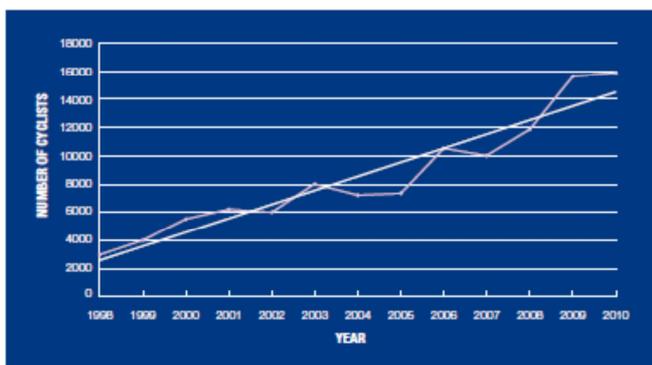
While the TSW program offers support to assist organisations to develop travel plans, few activities organised by the TSW program directly target employees. Cycle training was identified as a way to target employees and address the skill, knowledge and confidence related barriers to cycling. In 2011, the program partnered with the City of Perth to trial cycle commuting as a means of motivating more employees to cycle commute.

2. Cycle Commuting in Perth

The Perth Bicycle Network Plan (1996) was the first comprehensive plan for the provision of cycling facilities within the Perth metropolitan area. Since, then successive Governments have rolled out the plan. The Department of Transport has been promoting cycling for ten years using the Cycle Instead promotion line using media and events promotion. In 2012, the Government released the Draft Western Australian Bicycle Network Plan 2012-2021, which maps out the way ahead to service WA's expanding cycling needs, with a focus on this being to support the increasing numbers of commuter cyclists.

The popularity of cycling has increased over the past 15 years as shown by counts of cyclists to and from Perth's CBD. Journey to work data from the Census supports this showing a 16% increase in cycling from 2001 to 2006 in WA (ABS, 2006).

Daily Cycling Numbers to and from CBD Since 1998



Source: Department of Transport, 2012

Despite these increases, cycling still has a small share (1%) of journeys to work (ABS, 2006). When it comes to recreational riders WA has rates significantly higher than the national average, with 77% of people riding in a typical a week doing so for recreation (Munro, 2011).

The host of benefits of cycling are commonly known. The benefits of commuter cycling include the 'positive impact on public health, as well as reductions in air and noise pollution, congestion and climate change mitigation' (Bauman et.al, 2008). For individuals, commuter cycling also offers a chance to include exercise in the working day and so accumulate the thirty minutes of moderate activity recommended in the National Physical Activity Guidelines for most days for good health (Department of Health and Ageing, 1999). Cycling can also offer convenience and freedom, saving people time in peak hour, with vehicle speeds in peak hour similar to (or lower than) cycling speeds (Australian Bicycle Council, 2010). Cycling can also save people money with the costs of operating and maintaining a bicycle 5% of that of a motor vehicle (Tranter, 2004) In quantifying some of these benefits, cyclists have been estimated to save the economy \$63.9 million in congestion costs and \$72.1 million in health costs. The economic benefit of commuter cycling in total is \$144.3 million per year (Bauman et.al, 2008). Cycling is also a fun activity, providing opportunities to meet new people and build a community's social capital (Australian Bicycle Council, 2010).

Despite all of the benefits to individuals, the desired behaviours of infrequent cyclists cycling more frequently and those interested in cycling taking it up are not reflected in mode choice for work journeys (Robinson, 2011). Literature identifies several different barriers to cycling. These include perceived lack of safety and also the embarrassment of being sweaty at work or wearing cycling gear in the workplace (Scott and Span, 2009). Other inhibitors to commuter cycling include distance from home, disorganisation, work and post-work commitments (TNS, 2010).

Social norms and culture pose barriers to cycling. In Australia and particularly in Perth, we have a car dominated culture, where most people think it's acceptable to always travel by car, even for short trips (Bauman et.al. 2008). This social norm, coupled with a lack of bicycle infrastructure represents major barriers to an increase in the uptake of cycling (Bauman et.al. 2008). Closely linked to bicycle infrastructure is urban design. Low density developments, with poorly connected street networks increase average journey distance and perpetuate the social norm (Giles-Corti et.al, 2005). A Flemish study (Geus et.al, 2008) found that 'when people live in a setting with adequate bicycle infrastructure, individual determinants (psychosocial, self-efficacy, perceived benefits and barriers) outperformed the role of environmental determinants in the sample'. The results suggests the physical environment factors are not essential in predicting cycling for travel to work in the sample, the individual and social factors are more predictive in distinguishing between the cyclists and non-cyclists (Geus et.al, 2008).

Les Robinson (2011) argues along a similar vein, that "predisposing (motivating) factors and enabling factors must both be present for a behaviour to be adopted". Enabling factors are either changes to people's environments or their self-efficacy. Self-efficacy means the confidence one has in their own capacity to execute a task (Robinson, 2011). Cycling is an activity that requires greater levels of confidence than some other forms of physical activity, mainly due to the interaction with motor vehicles. Cycle training is one strategy to build self-efficacy and address other individual determinants around cycling.

3. Cycle training in Australia and overseas

AustCycle was established in 2008 as a joint initiative of Cycling Australia, the Amy Gillett Foundation and the Bicycle Federation of Australia. It was the result of over a decade of research that identified a 'strong need to develop a national education approach to community cycling, which in the past was highly fragmented and provided on an ad hoc basis' (What is Austcycle? accessed, 26th April 2012<<http://www.austcycle.com.au>>).

AustCycle is Australia's only national cycling accreditation program, it provides education and training to community members to encourage them to get on their bikes and ride. It is a national system using accredited instructors (called Teachers) working for Licensed Providers, delivering training supported by an accredited national curriculum.

The National Cycling Strategy 2011-2016 under its objective of enabling people to cycle safely includes reference to 'States and Territories facilitating the roll out of a nationally consistent community bike skills training program, including trials where appropriate' (Australian Bicycle Council, 2010). Trials of bike skills programs are already taking place across Australia. The City of Sydney in the Cycle Strategy and Action Plan 2007-2017 commit to 'investigating the value of providing adult bicycle training for individuals and businesses' and are currently offering free confidence courses for those looking to build confidence to cycle commute (City of Sydney Council, 2007). All other States and Territories are also promoting adult cycle training to varying degrees with at least one Austcycle licensed provider in each State and Territory (www.austcycle.com.au).

In WA, the Physical Activity Taskforce, Department of Transport, Royal Automobile Club and others have worked collaboratively to increase the number of cycle coaches available so that training can be provided to both adults and children. Adult bike education is relatively new in WA and is helping to provide bike skills to commuters and confidence to "rusty" bike riders who have not ridden for years or never ridden with traffic. The City of Stirling has been delivering adult cycle training programs for over 3 years. The Women on Wheels program delivered in Stirling has trained over 200 women in learn to ride/back on your bike courses, 90 women in coached riding groups and 30 women joined independent riding groups (Burgess, 2012). Stirling results show that in each example 90-100% of participants that join the post course riding group continue to ride 12 months after. Those that don't join riding groups only continue to ride if they have support from a partner/friend (Burgess, 2012).

Cycle training is also used overseas as a behaviour change tool, but it has been most prevalent in the UK. In London, cycle training has received significant funding levels over recent years. £3m was invested in cycle training in 2008/2009 (TfL, 2009). Training in the UK is delivered under the National Standard termed 'Bikeability'. Bikeability has three levels. In Level one participant's learn to control and master their bike. This session takes place off-road away from traffic, usually in a playground or other enclosed area. At Level two participants learn to complete a short on road journey and at level three a wider variety of more challenging traffic conditions are experienced. (Cycling skills for adults, accessed, 7th May 2012 <http://www.dft.gov.uk/bikeability/the-three-levels/cycling-skills-for-adults/>).

Despite the investment in cycle training in Australia and overseas 'there are few rigorous evaluations of bicycling skills programs and their impact on bicycling, but evidence shows an increase in skills and confidence' (Pucher et.al, 2010). An evaluation of adult cycle proficiency training in Sydney by Tefler (2005) found that 'participants significantly increased their self-reported skills and confidence for cycling and more than half the participants said they cycled more than before the course, including to work'. This increase in cycling was statistically significant among those not cycling before the course (Tefler et.al, 2005). A study of the effectiveness of adult cycle training in London borough of Tower Hamlets found that

statistically significant increases in mean cycling levels were observed amongst 28% of trainees responding to baseline and three month follow up surveys. A substantial proportion of these trips are rises in commuting by bike to work (Margolis, 2011).

4. Methodology

In 2011, The City of Perth and TravelSmart Workplace program (Department of Environment and Conservation and Department of Transport) partnered to trial cycle training as a means of increasing cycle commuting amongst employees of workplaces within the City of Perth.

The purpose of the trial was to:

1. Increase cycle commuting in participating workplaces by supporting interested employees who do not currently cycle to work
2. Test the feasibility of cycle training as an activity the TravelSmart Workplace program can offer to participating workplaces.

The program focused on employees who cycle recreationally or could readily cycle and could be encouraged to cycle commute to their workplace in the city or to a train station en route.

The following process was undertaken to deliver the cycle training trial:

1. Promotional poster developed by City of Perth to promote the trial
2. Expressions of interest and cycle training information sheet were sent out to TravelSmart workplaces. Five EoI's received from Arup, Department of Housing, Main Roads, Technip and Woodside
3. Evaluation surveys developed in SurveyMonkey by program staff (pre, post and four month evaluation survey).
4. Decided to run three courses covering four organisations (Arup and Technip was combined as a joint course)
5. Successful organisations notified
6. Austcycle coach contacted organisations to set dates for cycle training
7. Pre surveys completed by participants in organisations
8. Three cycle training courses delivered at (Arup and Technip, Department of Housing and Woodside). The training courses consisted of the following elements: Theory session, Practical skills session 1 (off-road), Practical skills session 2 (on-road) and a social ride (Social ride not completed at Technip/Arup). Each practical skills session was 2 hours in duration and delivered by an Austcycle coach.
9. Post surveys completed by participants in organisations (one immediate post survey and one survey four months after course completion)
10. Program staff and cycle coach met to discuss learning's from the trial and future possibilities for delivering training

Based on the trial in 2011, a modified approach was used for training delivered in 2012. A modularised program was offered where people could attend one or a selection of the sessions offered, depending upon their skills and interests in cycling. This was to allow people to tailor attendance to skills they wish to learn and designed to reduce non-attendance at sessions.

In 2011, training sessions were held at each workplace with people from that workplace attending. In 2012, a host workplace was sought and the participants were employees from that workplace as well as employees from workplaces in the surrounding area. Bicycle maintenance theory sessions and bicycle maintenance practical sessions were also added

to the training based upon feedback from participants in the 2011 trial. Another key difference in delivery was the focus. The focus was extended to include new, inexperienced or novice riders as well as those people that could already ride and wanted to boost confidence. Separate sessions were delivered to each group of riders.

In 2012, two cycle training courses were delivered in East Perth and Northbridge. The East Perth course was hosted by Education and Training Shared Services Centre and the Northbridge sessions were held at a central location for that area, the Northbridge Piazza. Places on the East Perth course were offered internally at Education and Training Shared Services before the course was opened up to employees in surrounding workplaces in the East Perth area. In Northbridge, the sessions were attended from employees within TravelSmart workplaces across the CBD and also further afield.

The content of training delivered in 2011 and 2012 is given below:

Component	Content
Theory session	<p>One hour presentation and discussion facilitated by cycle coach, covering basics of cycle commuting</p> <p>Key points:</p> <ul style="list-style-type: none"> • Bicycle – type and set up for cycle commuting • Bicycle accessories- lights, clothing, panniers etc. • Route selection (show TravelSmart Guide, Perth Bike Maps) • Cycling in traffic – safe cycling strategies and road rules • Workplace facilities (bicycle parking, showers, lockers)
Practical session 1	<p>Two hour session (off road, enclosed area)</p> <p>Key points:</p> <ul style="list-style-type: none"> • Bicycle set up • Basic bicycle handling • Practising of cycling skills- riding in a straight line, cornering, riding with one hand, looking behind and signalling • Various drills to practice skills
Practical session 2	<p>Two hour session (on-road)</p> <p>Key points:</p> <ul style="list-style-type: none"> • Guided ride that consolidates cycling skills and enables practice of safe cycling strategies • Negotiate different infrastructure e.g. footbridges, roundabouts, traffic lights • Cycling in traffic and using the Principal Shared Paths (PSP's) • Consolidating group riding skills such as calling and signalling
Social ride	<p>One hour ride in traffic/on shared paths</p> <p>Mark end of training, apply skills</p>
Bicycle maintenance theory session (2012 only)	<p>One hour practical demonstration by coach covering:</p> <ul style="list-style-type: none"> • ABCD (air, brakes, chain, drop test) bike check • How to clean your bicycle and degrease/grease your chain • How to fix a puncture

Bicycle maintenance practical session (2012 only)	<p>A 2 hour practical session where participants completed the following on their own bicycles, with assistance from coach:</p> <ul style="list-style-type: none"> • ABCD (air, brakes, chain, drop) bike check • Clean bicycle and degrease/grease chain • Fixing a puncture
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To evaluate the training surveys were devised that included questions that would assist evaluating both the process and impact of the training.

The pre-course survey covered demographic characteristics, frequency of riding for commute and recreation trips over the last six months, confidence levels around key aspects of cycling and a self-assessment checklist of cycling skills. Qualitative questions around what participants hoped to achieve as well as a rating of current fitness were also sought.

At the end of the course the same questions as the pre survey were asked with some additional process questions around people's satisfaction and improvements to the course. Surveys were run soon after the courses and then again four months afterwards to track changes in the confidence and skills of participants and their level of cycle commuting. The surveys were administered online using SurveyMonkey and data analysed in Microsoft Excel. At the time of writing the four month follow up surveys were yet to be completed by participants in the 2012 courses.

5. Results of cycle training

5.1 2011 results

Of the 27 participants that registered for the course 59% were male and 41% were female, with the majority (78%) aged between 25-44 years of age.

18 participants completed the post survey. Two participants that didn't complete the pre survey completed the post survey. 59% of the participants that completed the pre survey also completed the post survey. 41% of participants that completed the pre survey, completed the four month after survey.

Of the 18 participants that completed the post course questionnaire 78% said they would recommend the training to colleagues, with 33% finding the overall course excellent and 44% very good. Participants also provided qualitative responses on most and least useful aspects of the training.

Most useful aspects:

- "Doing the drills in the car park - learning to ride slowly and weaving"
- "Getting guidance on how to ride on the road were the most useful aspects".

Least useful aspects

- "Hard to commit to after work sessions – i.e. one day I had to drive to work for work commitments and the other day I was too busy to attend".
- "The first practical course was set at a low standard, and I am a competent rider. That's OK though because there were a few people who needed the basic skills practice".

Six participants also cited the inclusion of a bike maintenance element into the course would be a good future improvement.

The pre survey showed that before cycle training, 59% of people had not cycled to work in the last 6 months. After completing the training, 67% of participants stated they intend to cycle one day or more per week. The four month after survey showed that 54% of participants reported they cycled one day or more per week as part of their commute to work. This 54% was the six people that completed the four month after survey. Despite the small response rate the results do suggest people ride more after the training. 55% self-reported that the training has changed the method they use to commute to work. The bicycle replaced bus and train as mode of travel used by the majority (64%) of four month after survey respondents.

The figure below shows how often people cycled for leisure and work before the training, how much they stated they intended to directly after and then the self-reported frequency four months after the training. The number of cycling trips increased in all of the categories (once a month, once a fortnight, 1-2 times a week, 3-4 times week, 5 or more times a week) when comparing the before and 4 month after data.

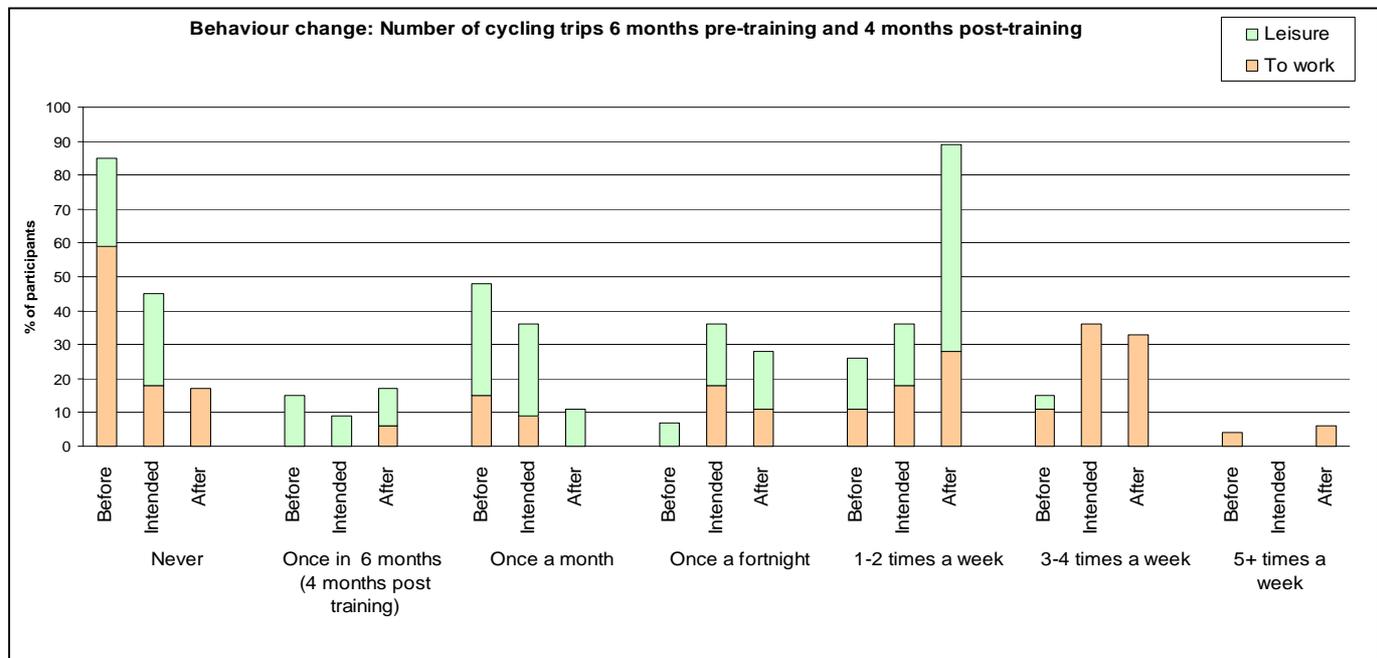


Figure 1: Number of cycling trips before, post and 4 months after training.

Figure 2 shows the rating levels of fitness for several participants 4 months after the training. It can be seen that several participants (22%) self-reported their fitness levels improving from 'average' to either 'good' or 'very good'.

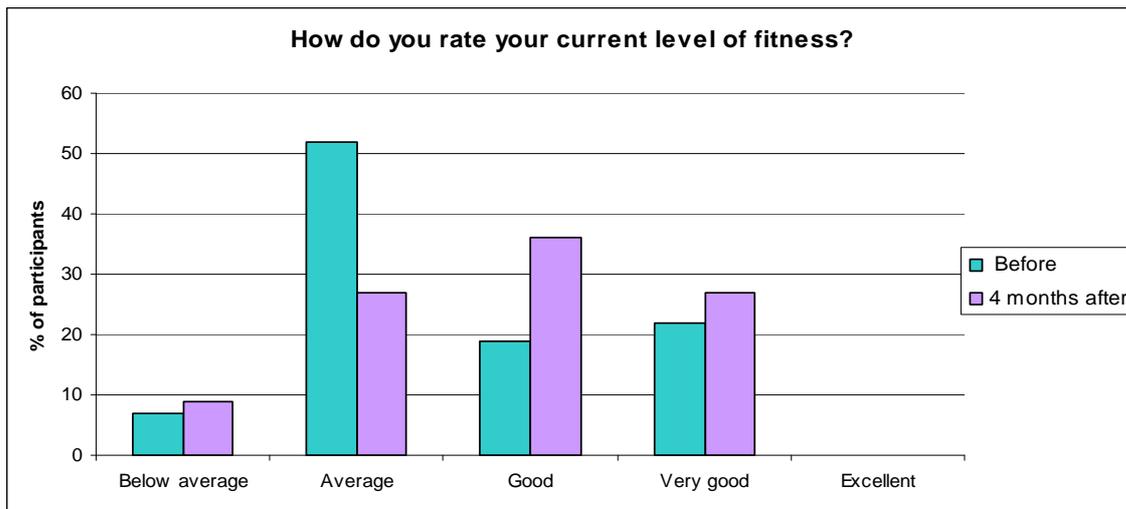


Figure 2: Fitness rating levels of participants before and 4 months after cycle training.

Participants were asked to rate how confident they felt about a range of factors relating to cycling these included 'planning your route and locating information about cycling' 'the road rules, responsibilities and etiquette of cyclists' 'cycling on shared paths' and 'cycling on road in traffic. In the post survey no participants indicated feeling 'not confident' about the first three above mentioned categories. Four months later, this figure only increased to one person. This suggests people's confidence in these areas was sustained four months after course completion. Some form of post training support or opportunities to continue riding maybe necessary to continue to sustain confidence and increase cycling levels. The graphs below demonstrate the sustained improvements to people's confidence levels after the training

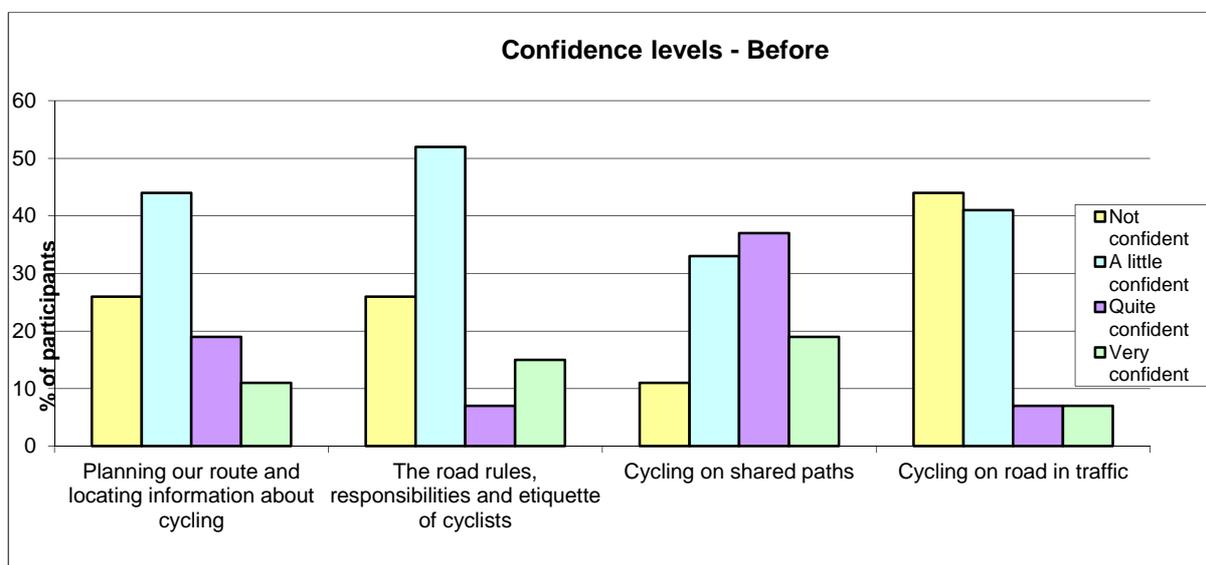


Figure 3: Confidence levels before cycle training.

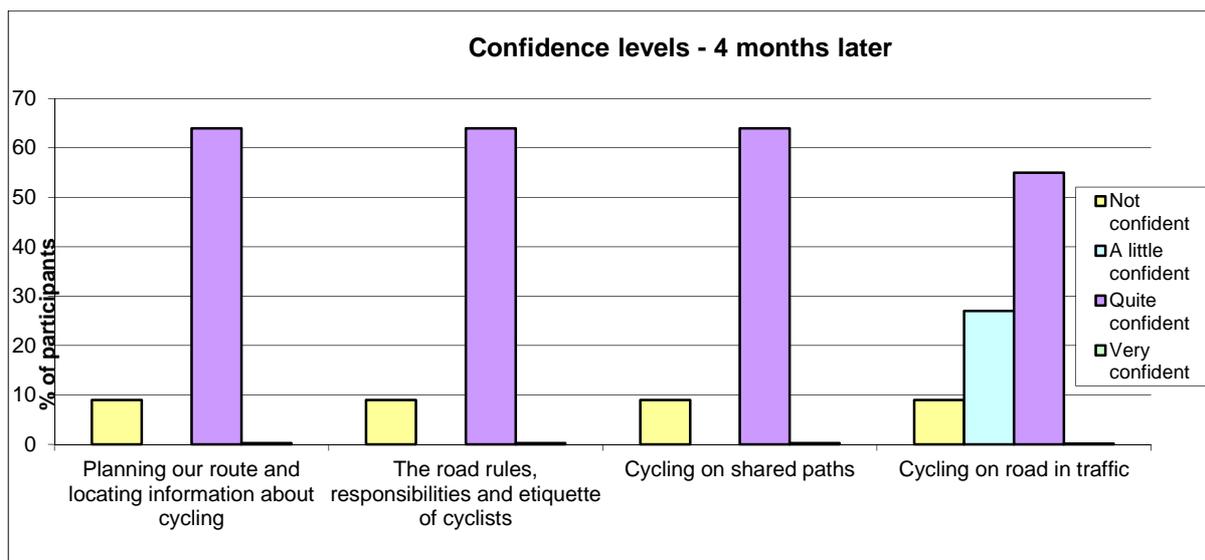


Figure 4: Confidence levels four months after completing cycle training.

Participant's stories were constructed from survey responses and then supplemented by interviewing and confirming the details with the participant. Participants' stories help demonstrate the impact of cycle training. One of these follows.

Participant story– Kathleen¹ Female, 35-44 years old

Kathleen rode her bike once a month to go to work and once a month for leisure/recreation purposes in the six months prior to the training. Even though she enjoyed the activity, she did not feel safe cycling. Kathleen felt 'a little confident' about planning her route and locating information about cycling, the road rules, responsibilities and etiquette of cyclists and cycling on shared paths. However, she was 'not confident' about cycling on-road in traffic

The training motivated Kathleen to consider cycle commuting more often. She rated the training sessions as 'good' and enjoyed the first practical session, which focused on basic skills. Her confidence levels increased to 'quite confident' in route planning and locating information, road rules, responsibilities and etiquette of cyclists and cycling on shared paths. From not being confident cycling on-road in traffic, Kathleen felt 'a little confident' after the training.

Four months after the training, Kathleen's perception of cycling has evolved: she feels safer and still finds cycling enjoyable. Kathleen has replaced some bus journeys with cycling and now cycle commutes to work 3 to 4 times a week. Kathleen's fitness levels have increased from average to 'very good'.

5.2 2012 results

In 2012, the same pre and post surveys were used. The training was completed in mid-April 2012, so 4 month after survey results are not yet available. The results included in this paper are just the before and immediately after results for both the East Perth and Northbridge training courses that were delivered.

¹ Participants name changed for purposes of confidentiality

The results from the East Perth and Northbridge courses have not been combined into one data set so that any potential influence upon results based on method of delivery can be distinguished. The East Perth course was hosted by an organisation signed up to the TravelSmart Workplace program (Education and Training Shared Services Centre) whereas Northbridge sessions were open to employees from a wide range of workplaces.

East Perth course

Of the 23 participants that registered for the course 4.3% were male and 95.7% were female, the highest numbers of participants were (30.4%) were aged between 45-54 years of age.

52% of attendees that completed the before survey completed the after survey. Of these people, 65% stated that the training had encouraged them to cycle commute more often.

Before the course 56% of participants had not cycled to work in the last 6 months, the after results indicate that 60% of participants that responded now intend to cycle one day or more per week. 61% of participants indicated they felt not confident cycling on-road in traffic, this figure declined to 35% in the after survey with an increase in 'very confident' levels from 0% to 15% post training.

100% of participants stated they would recommend this training to colleagues. When we asked participants for feedback on possible future improvements, each individuals suggestion was unique, some suggested more 'group riding' others 'more advanced practical road riding skills'. 15% of participants said they would be interested in riding to work with colleagues and 30% indicated 'maybe'.

Northbridge course

Of the 20 participants that registered for the course 25% were male and 75% were female, the highest numbers of participants were aged between 45-54 years of age.

55% of attendees that completed the before survey completed the after survey. Of these people, 92.9% said that the training had encouraged them to cycle commute more often

Before the course 50% of participants had not cycled to work in the last 6 months, the after results indicate that 36% of participants that responded now intend to cycle one day or more per week. 85% of participants indicated they felt not confident cycling on-road in traffic, this figure declined to 28% in the after survey with an increase in 'very confident' levels from 5% to 7% post training.

100% of participants stated they would recommend this training to colleagues. 28.6% of participants noted that they were interested in riding to work with colleagues and 50% said 'maybe'.

The Northbridge sessions had many unfilled positions. One session had to be cancelled and one session was attended by only one person. The timing of sessions on Friday afternoons may have contributed to the lack of numbers as well.

Discussion

Following the cycle training courses delivered at workplaces in 2011, over half (54%) of the participants reported cycling one day or more per week as part of their commute to work. The participants also reported increases in confidence around planning routes and locating information about cycling, road rules and responsibilities of cyclists and cycling on shared paths and on road. These results support other research into adult cycle training and the table below show a comparison of changes in cycling levels with other studies.

Post training cycle change	Sydney (Australia) cycle training Tefler et al (2006)	Lambeth (London) SDG (2008)	TfL (London) (2008)	CTUK (London) (2004)	Tower Hamlets (London) Tower Hamlets (2011)	Perth (2012)*
Cycle more	56%	64%	24%	81%	47%	54%
No change don't know	29%	32%	60%	n/a	36%	28%
Cycle less/stopped since course	15%	4%	16%	n/a	17%	18%

* Perth results are only 2011 trial (4 month follow up surveys not yet available for 2012 courses)

Source: (Margolis, 2011)

There is a large degree of variation in impact on cycle participation across the projects/studies. However, the data does suggest that cycle training programs can be effective in increasing cycling levels.

Many of these studies, much like the trial undertaken with workplaces in WA are limited by the lack of a control group. In addition to this, they utilise basic pre, post and 4 or 6 month after surveys that rely upon participants self-reporting cycling levels. This study did not use any advanced statistical analysis such as McNemar's test used in the Sydney studies (Tefler, 2006) and paired t tests in Tower Hamlets (Margolis, 2011). This would be a significant improvement to the reliability of the results and allow for testing of various hypotheses. Another way to improve the reliability of the results would be to increase the number of participants completing the post and 4 month after follow up surveys and also considering the feasibility of 12 month follow up surveys or a telephone interview.

A further limitation of the study is that the numbers of participants was small; this is due to the nature of the training and required ratios of participants to teachers. Reaching large numbers of the population through cycle training in WA would require a more comprehensive approach. For example if cycle training was a requirement in schools, or at least made available to a large number of schools at a subsidised rate, and community and workplace based courses became more widespread. Cycle training has been delivered wide scale in the UK and has become the favoured policy response with the Governments most recent White Paper giving relatively low investment to safe routes to schools projects in favour of significant funding levels for delivery of cycle training in schools (Department for Transport,

2011). This response has been criticised as little tangible evidence exists that this approach alone will promote modal shift.

Research elsewhere suggests that cycle training needs to be part of a co-ordinated and multi-faceted approach to encouraging cycling (Margolis, 2011). The impact of a large engineering based scheme was purported to lead to a 30% increase in cycle commuting in the central London congestion zone (LCC, 2010). Another more local example of infrastructure that has increased cycling levels is the extension of the East Perth to Maylands Principal Shared Path. 708 extra cyclists used the route each weekday, of which 102 were transferred from other routes and a 50% increase in usage was recorded when the path was extended 2km (Cornwell and Barker, 2007). So neither infrastructure nor training alone provide the answer and as Pucher et.al (2010) emphasise a “coordinated package of complementary infrastructure measures, programs and policies may enhance the impact of any intervention that is a component of that package” (Pucher et.al, 2010).

Cycle training can generate a notable increase to people’s confidence levels and in turn self-efficacy. Other studies provide evidence that self-efficacy is the strongest correlate of people’s physical activity, when compared with other cognitions such as perceived benefits, perceived barriers, and social norms (Wu, Pender, & Nouredine, 2003). The right type of training also needs to be delivered followed by post training support to ensure people consolidate and further the confidence/efficacy gained through the training (Burgess, 2012). Peer support or some type of mentoring for participants after the training is completed were not explored in the trials. This approach could form a part of future workplace courses where regular cycle commuters can mentor and support those that would like extra encouragement post course. Bike buddies have been established in the Greater Wellington Region of New Zealand and is a scheme that matches new riders looking to build their confidence and find out the best routes with a bike mentor an experienced cyclist willing to bike with a new rider to help them build confidence (Bike Buddies accessed 15th May 2012 <http://www.gw.govt.nz/bike-buddies/>)

Cycle training in Perth workplaces indicates that when organising cycle training programs with workplaces, programs that are hosted by a workplace but have a location based focus have the highest levels of attendance. This was the case for the course hosted by Education and Training Shared Services Centre. This workplace had a coordinator internally promoting the training and generating enthusiasm in the workplace. The General Manager at Education and Training Shared Services Centre was supportive of the training and attended theory sessions as part of the course. This kind of active encouragement by the employer to employees is significant. A survey of 888 workers in inner-west Sydney found that those in workplaces that encouraged active travel were significantly less likely to drive to work (49%) than those without encouragement (73%) (Wen et.al, 2010) Cycle training succeeds in targeting individual behaviour, but this alone will not be sufficient to greatly increase active travel. Where possible, “interventions should also target organisational changes (i.e. policy and physical environment) in order to bring about a significant shift in transport mode among employees.” (Wen et.al, 2010).

Finding time to participate was a barrier to taking part in sessions and was reflected in non-attendance at sessions. Despite email reminders and phone calls, participant numbers were still low at some sessions. This issue is experienced by similar programs delivered elsewhere. For example the ‘Bike Now’ project in New Zealand had poor uptake to sessions, despite offering these in different formats and at different times (after work and weekends). However, one organisation in the NZ program, Contact Energy had a highly motivated champion who organised three ‘Cycling 101’ seminars (4-6 hours each) at three of their worksites. These sessions were well attended (44 participants) and were held partially during work time. Engaging employers to deliver the training during work time could be one

means of ensuring attendance. Another possibility could be asking participants to make a financial contribution and written commitment when signing up to the course. The City of Stirling Women on Wheels program provide bicycles and helmets and charge residents \$30 for a half day back on your bike workshop (Women on Wheels and Blokes on Spokes too! Accessed 15th May 2012 <http://www.stirling.wa.gov.au/womenonwheels>).

Another possible option to consider for future courses is making cycle training part of a package of measures at a workplace aimed at boosting cycle participation, such as peer support, promotions, appropriate facilities and pool bicycle for use for business trips. An example of this type of project is 'Bike Now' that involved 40 workplaces in Auckland, Wellington, Nelson and Blenheim, New Zealand for a 12 month period in 2007 and 2008. Bike Now succeeded in raising awareness about cycling in the workplaces and did encourage some people to start cycle commuting, however none of the initiatives stood out as being particularly successful.

Further research could explore some of these options discussed – greater employer engagement, packaging training with other measures, measuring participant physical activity levels or health status and longer term tracking of cycle participation. The Cycle 100 program delivered in Perth in 1999, gave employees who met certain criteria a “free bike” that they had to use four days per week over a 12 month period. Various health variables such as physical work capacity, coronary risk ratio were measured as a part of this with results showing that new riders had significant health improvements (Marshall, 1999). This type of project and its delivery could be considered for future cycle training courses.

Overall, cycle training is a useful strategy for the TravelSmart Workplace program to use with employees in participating organisations to increase the uptake and frequency of cycle commuting. Research suggests cycle training is more effective in changing commuter travel behaviour when part of a package of actions in a workplace setting. Cycle training is a useful part of this package of actions as Perth strives to become a cycling city.

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