New ways of encouraging an old form of mobility

INCENTIVISATION OF WALKING TO SCHOOL IN LONDON*

NUEVAS FORMAS DE FOMENTAR UNA VIEJA FORMA DE MOVILIDAD
Incentivando el caminar hacia la escuela en Londres

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Resumen

Este artículo presenta una evaluación del esquema Step2Get. Un esquema que utiliza incentivos para alentar a los estudiantes del Ricard Lodge School en Wimbledon (Londres, Reino Unido), a caminar a la escuela en lugar de tomar el autobús. Los recorridos peatonales son registrados a través de tarjetas magnéticas que fueron entregadas a los estudiantes que participaron del programa y, quienes fueron incentivados a caminar a la escuela con regularidad a cambio de la entrega de recompensas materiales. El análisis de los datos de la autoridad regional de transporte, Transport for London, mostró que la demanda de buses disminuyó entre los estudiantes participantes, lo que redujo el hacinamiento en las paradas y mejoró el tiempo de espera. Un análisis más detallado muestra que los participantes del esquema Step2Get que recibieron incentivos para caminar aumentaron significativamente su disposición para caminar y desarrollaron actitudes más positivas hacia el modo peatonal, incluso después de que los incentivos fueron eliminados. Los resultados sugieren que una intervención temporal dirigida a lograr un cambio de comportamiento puede tener un impacto de largo plazo en los hábitos de viaje. Así, el artículo concluye recomendando que este tipo de intervenciones, o similares, deberían ser consideradas en el portafolio de las políticas de transporte para la gestión de la demanda de viajes.

Palabras clave: Step2Get, movilidad peatonal, hábitos de desplazamiento

Abstract

This paper evaluates the Step2Get scheme where incentives were issued to encourage students at Ricards Lodge School in Wimbledon (London, United Kingdom), to walk to school instead of taking the bus. Walks were recorded though swipe cards that were issued to student participants who were incentivised for walking to school regularly by receiving material rewards. Analysis of data from the regional transport authority, Transport for London, show that student participants' demand for buses decreased, which reduced overcrowding at the bus stop and thus improved bus dwell time. A further analysis shows that Step2Get participants who received incentives to walk significantly increased their modal split for walking and developed more positive attitudes about walking even after the incentives had stopped. The results suggest that a temporary behaviour change intervention can have a lasting impact on travel habits. The paper thus ends with the recommendation that this or related types of interventions should be considered in the transport policy portfolio of travel demand management interventions.

Keywords: Step2Get, walking mobility, travel habits

Resumo

Este artigo apresenta uma avaliação do esquema Step2Get, onde emitiram-se incentivos para alentar a os estudantes do Ricard Lodge School em Wimbledon (Londres, Reino Unido), a caminhar à escola em lugar de pegar o ônibus. As caminhadas registraram-se através de cartões magnéticos que foram emitidas a os estudantes participantes, quem foram incentivados para ir caminhando à escola com regularidade mediante a entrega de recompensas materiais. O analise dos dados da autoridade regional de transporte, Transport for London, mostrou que a demanda de ônibus diminuiu entre os estudantes participantes, o que reduziu o amontoamento nos pontos e melhoro o tempo de espera. Um analise mais detalhado mostra que os participantes do Step2Get que receberam incentivos para caminhar aumentaram significativamente sua distribuição modal para caminhar e desenvolveram atitudes mais positivas em relação com a caminhada, incluso depois de que os incentivos se tinham suspendido. Os resultados sugerem que uma intervenção de cambio de comportamento temporal, como Step2Get, pode ter um impacto duradouro em os hábitos de deslocamento. Desta forma, o artigo termina recomendando a consideração deste tipo de intervenções o afins das politicas de transporte para a gestão da demanda das viagens.

Palavras-chave: Step2Get, mobilidade pedestre, hábitos de deslocamento.

Introduction

Urban areas suffer from various pressures due to the current set up of their mobility systems. These pressures involve congestion on the road network, overcrowding on the public transport network and health impacts due to air pollution and/or lack of exercise. Traditional solutions, such as building new roads or increasing public transport capacity, can be unsustainable and may come at very high cost. In London, United Kingdom (UK), these issues are also being addressed by promoting the most basic form of transport – walking. However, encouraging people to walk can be challenging, as they often prefer the comfort of their car or public transport even for very short trips.

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Would people walk more if they are given an incentive to do so? This paper presents a case study from London where incentives were used to encourage school students to walk instead of taking the bus. Students were provided with a technology that recorded the amount they walked and then received rewards based on how often they had walked to school.

The first section presents justifications for the importance of walking to school and highlights that, in the UK, the number of walking trips to school has decreased while at the same time the use of motorised vehicles for school journeys has increased. This rise comes at a cost in terms of healthcare, safety and overall liveability of cities due to congestion and overcrowding on the road and public transport network. The section continues by reviewing the current statutory requirements within the UK for schools in relation to student travel planning. Special attention is given to the school travel plans that aim to reduce negative side effects, such as congestion and overcrowding, caused by journeys to school.

In the second section the overcrowding problem at the case study site, the public transport interchange in Wimbledon, London, is described. Further, the justification for the Step2Get scheme and its targeted selection of participants, students at Ricards Lodge, an all-girls secondary school, is introduced.

The third section provides details about the technology and methodology that was used to implement the Step2Get scheme, in which material incentives were used to encourage students to walk to school more often. Walks to school were recorded by means of swipe card technology, and reward size varied as a function of the frequency of walking to school. The fourth section evaluates Step2Get in terms of its beneficial impact on overcrowding and bus operations at the case study site. A cost/benefit analysis for the key project stakeholders is presented, which reveals that the benefits are larger than the costs of the scheme.

Subsequently, in the fifth section, the theory of habitual travel patterns is introduced and applied to evaluate the impact of the Step2Get scheme on the habitual travel behaviour of participating students both during the incentives and after the incentives had stopped. For this purpose, participants and a non-participating control group were asked to complete a survey, which assessed modal share, frequency of walking to school and other destinations, and attitudes towards walking as a mode of transport.

Finally, the discussion presents, interprets and summarises the survey results, revealing both positive and lasting changes in the habitual travel behaviour of the participating students compared to the non-participating students. This analysis is followed by highlighting project limitations, and the paper concludes by suggestions for optimised future implementations of this or related types of interventions.

Background. Walking to School – why is it important?

There are numerous benefits of walking to school[1]. A detailed overview by Tudor-Locke, Ainsworth and Popkin (2001) highlights the importance of establishing an early habit of physical activity during childhood that is sustained into adulthood, and the importance of combating the international obesity problem. These authors argue that there has been a steep decline in the amount children walk. At the same time, there has been a dramatic increase in the reported use of motorised vehicles, including the chauffeuring of children. This leads to congestion during morning peak, which is known as the "school run". For school children in the UK, the proportion of trips to school made by car increased from 38% in 1995/97 to 41% of in 2006 (Department for Transport, 2008).

The above issues and others led to the creation of the Education and Inspections Act 2006 (clause 76, part 6) which places a general duty on local authorities in the UK to promote sustainable travel for journeys to, from and between schools and other educational institutions. The Act defines sustainable modes of travel as those that the local authority considers may improve the physical well-being of those who use them, the environmental well-being of all or part of the authority's area, or a combination of the two. Local authorities produce Sustainable Modes of Travel Strategies (SMoTS) to help fulfil their statutory obligations. Under this framework and as a reaction to the reducing number of walking trips, the UK government has created a statutory requirement for schools to implement a school travel plan.

Travel planning at school level is a strategic approach to more active, safe and sustainable journeys for education which help to increase the well-being and independence of children. The development of a school travel plan is based on consultation work with teachers, parents, pupils, governors and the wider community. A good travel plan should contain all the information about pupils' travel and transport needs and issues, such as details about all journeys to and from school, journeys to pre- and after-school events and journeys made during twhe school day to activities at other locations (Transport for London, 2010). Cairns, Sloman, Newson, Anable, Kirkbride and Goodwin (2008) evaluate the traffic reduction potential of 'soft measures' like school travel plans.

In the context of London where this case study is set, the 'School Travel Plan Programme – Annual Report 2008/2009'

published by TfL[2] (2010) presents an overview of the activities that are currently taking place to reduce the number of car trips on journeys to and from schools in London. The report highlights that between the hours of 8.30am and 9.00 am, almost 20% of the cars on the road are making a school journey, which leads to congestion during this peak time. However, the programme does not discourage the use of public transport for the journey to school.

To encourage the use of public transport for the journey to school young people until the age of 18 are able to travel free in London if enrolled in full-time education. However, this policy significantly increases bus demand and puts pressure on current bus capacity during peak times. London Buses[3] (Transport for London, 2009) estimate the cost of an additional morning peak bus to be £70,000[4] per bus per year. However, this solution would further increase bus on bus congestion resulting in delays. Walking for short journeys can reduce demand for bus services and thus avoid costs for providing local transport services. However, TfL (2008) has conducted research which highlights that walking is not popular and mutually discouraged among young people (12-18 years of age), which raises the question how this reluctance to walk can be overcome.

Wimbledon, London – Case Study

London is the capital of the United Kingdom. Greater London is divided into 32 Boroughs and covers an area of 1,572 km[2] with a population of 7,753,600 million (2009). In 2010, the modal split was 42% public transport, 36% car, 2% cycling and 21% walking (Transport for London, 2011). The modal split for walking is generally lower in outer London compared to inner London.

This paper specifically describes a case study in Wimbledon Town Centre, in the outer London Borough of Merton (population: 208,000), which is located 11.3 km from the centre of London. Wimbledon is generally considered as one of the safer and richer neighbourhoods in London. Wimbledon Station is a major regional transport interchange where underground lines, trains, trams and buses meet. It is one of the busiest stations in outer London (in 2009-10, approximately 28 million passengers have used the rail-based services London Underground, National Rail and Tramlink).

Figure 1 illustrates the demand at the bus stop at Wimbledon Station during morning peak times (8.30am to 9am) when hundreds of school children congregate and socialise on their way to school, resulting in severe overcrowding on buses and at the bus stop. This causes operational issues for London Buses and intimidates other passengers and passers-by which often complained to the transport authority and the police.

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[1] Please visit http://www.walktoschool.org.uk for further information on walking to school.

[2] Transport for London (TfL) is the integrated regional transport authority for Greater London. TfL manages the London Underground, Transport for London Road Network (580 Kilometers of road), London Buses and London Rail. For further information: www.tfl.gov.uk

[3]   London Buses is the subsidiary of Transport for London that manages bus services within Greater London. All services are provided by private operators.

[4] The current value for a £1 GBP is $ 1.62 USD (01/05/2012)

Figure 1: showing Close Circuit Television (CCTV) footage of bus stop during morning peak. **Source:** TfL, 2009.

A solution was needed to reduce the peak bus demand of school children and the crowding at the bus stop. A standard solution would have been to increase the number of busses on the route to meet the demand, but this would have increased bus operation costs and would have caused bus on bus congestion in an already extremely congested part of London. More officers of the Safer Transport Police[5], a service funded by TfL, were deployed on site to manage the number of people getting onto the bus and to reduce crowding at the bus stop, but the problem persisted.

A new transport solution would be to shift demand away from the overcrowded bus stop during the morning peak. Encouraging school children, who are the main cause of the overcrowding, not to take the bus but to walk for a short distance instead would reduce crowding and thus supersede the need for additional buses. This led to the creation of the Step2Get scheme which was designed

'to demonstrate that by encouraging children to walk to school, the problems in Wimbledon town centre and on buses can be alleviated without increasing the capacity of the bus services or increasing the levels of policing' (Transport for London, 2009).

Ricards Lodge all-girl secondary school was identified as a suitable partner in this project. With 1,189 students ranging between ages of 11-16 (Year 7 – Year 11) it was assumed that they could have a positive impact on reducing bus demand and overcrowding at the bus stop. Table 1 compares the journey times between taking the bus and walking to school for Ricards Lodge students coming from Wimbledon town centre.

Destination	Total Bus Journey Time from Wimbledon Town Centre (wait + ride + walk from disembarking the bus to school)	Total Walking Journey Time from Wimbledon Town Centre
Ricards Lodge	21 minutes*	16 minutes**

Table 1: Journey Times between Wimbledon Town Centre and Ricards Lodge School by Bus and on Foot. **Source**: Author

* Journey time was calculated using timetable information from the TfL website. (This does not factor in the likelihood of bus delay on days with high levels of congestion.)

** Estimated walking times at an average speed of 4,8km/h.

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5   Each London Borough has a Safer Transport Team that is dedicated to policing and tackling crime on the transport network and engaging with the travelling public. The teams patrol on buses and at transport interchange points, for example bus stations.

Considering the shorter journey time of walking compared to taking the bus, it is clear that walking should be the preferred mode of transport to Ricards Lodge School. To the contrary, students seem to habitually prefer taking the bus because of reasons other than journey time, which calls for interventions that increase the value of walking over and above saving time. Consistent with this idea, focus groups of Ricards Lodge students established that the student population would be more likely to walk to school if some kind of incentives were offered (Transport for London 2009). This inspired the development of the Step2Get behaviour change intervention outlined in the following section.

Step2Get

TfL worked with the company 'Intelligent Health' to set up the walking incentive scheme Step2Get. Following their parents' consent, Ricards Lodge students received a unique radio-frequency identification (RFID) card. Students in London are generally familiar with this technology, because similar cards are used as electronic public transport tickets. The students were instructed to swipe their card at 'swipe points' (small, robust boxes attached to existing sign posts) along a safe walking route to Ricards Lodge School. These 'swipe point' boxes contain affordable off-the-shelve mobile phones that feature integrated card reader technology which register individual students when they swipe their RFID card. The walking proof recorded in this way is sent to a central database via standard mobile phone short message service. Examples of the swipe points are shown in Figure 2.

Figure 2: Photo of Swipe Points. **Source**: TfL, 2009

The only way of earning rewards without walking would be to give one's RFID card to another student to swipe. In order to prevent such fraud, the third swipe point was positioned within the school grounds, where school staff checked for and thus prevented multiple swipes performed by single students. The Step2Get scheme was launched on 20th April 2009 immediately after the Easter holidays, and was stopped on the 14th June 2010. Figure 4 shows the walking route with the exact location of the three swipe points.
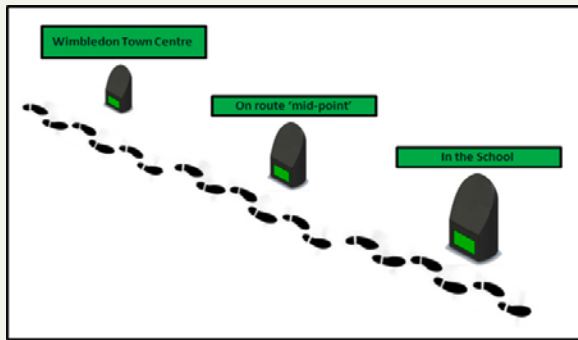
Figure 3: Illustration of the 3 Swipe Points. **Source**: TfL, 2009

Figure 4: Map of the Walking Route between Wimbledon Town Centre and Ricards Lodge School and Swipe Point Locations. **Source**: TfL, 2009

For every completed walk, the students are then awarded a point which is displayed on their individual Step2Get web account. Participating students can monitor the number of days that they walked the route and how many more days they need to walk before earning a reward. A cinema ticket and a £5 TopShop[6] voucher could be claimed after completing 5 and 8 'walks', respectively. An automated email is sent from the website to inform the school as to which students have earned and redeemed rewards. The student then collects the reward from the member of school staff charged with administering the scheme. Figure 5 shows one of the posters with which the Step2Get scheme was promoted and explained to the students.

Figure 5: Advertisement Poster for the Step2Get Scheme aimed at Students from Ricards Lodge School. **Source**: TfL, 2009

6   A popular fashion highstreet shop in the UK.

Impact on overcrowding and bus operations

Surveys carried out by TfL evaluated the impact of the Step2Get scheme on overcrowding and bus operations at Wimbledon Station. During the Step2Get intervention the average morning peak (07:50am to 08:20am) bus dwell time[7] fell by 62%. Before Step2Get was implemented, bus drivers were forced to close bus doors before all waiting passengers were able to board. During the intervention, the number of passengers unable to board morning peak busses fell by 50%. Additionally, there was a 48% reduction in Safer Transport Police time required to deal with the overcrowding issue. In sum, the Step2Get walking incentive scheme demonstrates that the overcrowding at public transport stops can be reduced by encouraging students to walk to their school.

The 2009 TfL evaluation suggests that the average cost of future implementations of the Step2Get scheme are approximately £10K per annum per school, with the walking rewards being the majority of that cost. If all stakeholders were to contribute to funding a year of Step2Get in proportion to the costs that they would avoid, the £10K required could be divided as shown in Table 2, resulting in an overall cost/benefit ratio of 1:24.5.

Stakeholder	Average cost avoided (£ p.a.)	%age of total costs avoided	Cost (£ per annum)	Cost/benefit ratio
TfL	127,500	52	5,200	
Bus Operators	1,128	0.5	50	
Local Authority	106,666	43.5	4,350	1 : 24.5
Police	10,176	4	400	
All stakeholders	245,470	100	10000	

Table 2: Cost/benefit ratio for Step2Get stakeholders. **Source**: TfL, 2009

Additionally, the Step2Get system was programmed to discount swipe attempts after lessons had begun, which encouraged participants to arrive at school in time. As a consequence, Ricards Lodge School reported a reduction in the number of students per day arriving late.

Impact on Habitual Travel Behaviour

The previous section suggests that incentives, such as the cinema tickets and shopping vouchers offered in Step2Get, can increase the frequency with which students walk to school. But what happens once the rewards stop? Do the incentivised

7   The scheduled time a bus is allowed to discharge and take on passengers at a stop, including opening and closing doors.

students continue walking, or do they revert to taking the bus? The theory of habitual travel patterns (Gaerling & Garvill, 1993; Ronis, Yates, & Kirscht, 1989) offers an explanation for how the incentives may have a lasting impact on the travel behaviour of the participating students.

According to this theory, a habit is defined as a behaviour sequence that is repeatedly performed without deliberation (Gaerling & Garvill, 1993; Ronis, Yates, & Kirscht, 1989; Verplanken, Aarts, & van Kippenberg, 1997), which means that a previously formed behaviour script is automatically activated and retrieved from memory in an effort to respond to a familiar task in a time- and energy-efficient fashion (Gaerling & Axhausen, 2001). The process towards developing such a behaviour script involves (1) a novel task (e.g., journey to a new school) for which there is no previously scripted behaviour, (2) the realisation and pursuit of a preferred outcome (e.g., arriving at school in an efficient way), (3) deliberate consideration and comparison of known behaviour options with which the preferred outcome may be achieved (e.g., checking possible routes using an online journey planner), (4) choosing the subjectively superior option, and finally, (5) a process during which this particular choice is repeatedly made with increasingly less effort until no deliberation is needed anymore (see Figure 6). At this point, the subjectively superior behaviour option has transformed into an automatically activated and applied behaviour script (e.g., the daily commute), which means other behaviour options won't be considered anymore. Following this logic, a behaviour change intervention has to disturb and disrupt the automatic retrieval of an existing behaviour script (e.g., taking the bus) by enforcing deliberation about an alternative behaviour (e.g., walking).
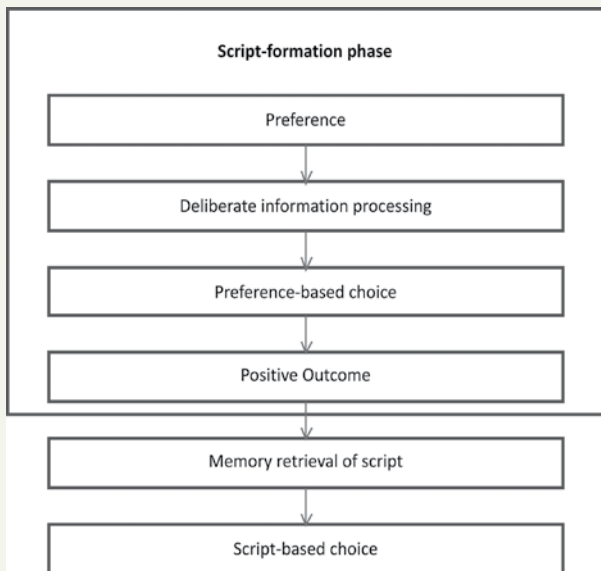

Figure 6: The Transition of Deliberate Preference-Based to Script Based Choice. **Source**: Gaerling, Fuji & Boe, 2001

To give some examples, the studies by Garvill, Marell and Nordlund (2003) and Fujii and Kitamura (2003) investigate ways of how the car-use habit can be transformed into a habit of using public transport. Garvill, Marell and Nordlund (2003) forced

subjects to deliberate about possible means of transport by asking them to answer questions concerning their choice before they start home-based trip chains. The intention was to force subjects to deliberate. A temporary decrease of car use was observed. In the study by Fujii and Kitamura (2003) attitudes towards bus use became more positive and the frequency of bus use increased for at least as long as one month after the expiry of free bus tickets that the participants had received at the beginning of the study. In this study, too, car choice became less habitual.

The Step2Get scheme combines the enforcement of deliberation about an alternative behaviour choice with the promotion of incentives that try to increase the value of this alternative behaviour over and above the value of the current scripted automatic behaviour. More specifically, the intervention aimed at disturbing and disrupting the process of automatically retrieving the 'bus travel' script by means of advertising and incentivising walking behaviour in effort to replace the 'bus travel' script with a newly formed 'walking' script.

To investigate whether Step2Get succeeded in doing so, both participating and non-participating students were surveyed[8] about the following measures of habitual travel behaviour: the school journey modal share before, during and after the intervention; the frequency of walking to and from school, and to other destinations before, during and after the intervention; and general attitudes towards walking. The combination of these measures should provide a comprehensive picture of any changes in the habitual travel pattern caused by the Step2Get scheme.

Habitual Travel Behaviour – Survey Results and Discussion

The first measure of habitual travel behaviour that was surveyed is the modal share of participants and non-participants before and after the Step2Get scheme. The survey results show a 10.39 percentage point increase in walking for participants and a 2.48 percentage point increase in walking for non-participants between the 'before' and 'after'. A Chi Square test was undertaken to establish whether these increments between the 'before' and 'after' are statistically significant. The results show that the increase in walking is statistically significant for participants ($p <$ .01) but not for non-participants.

The second measure of habitual travel behaviour that was surveyed is the 'before' and 'after' frequency of walking to school and walking back after school. For both participants and non-participants there was an increase between the 'before' and 'after' in the number of students who walked to school five times

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8   The surveys were undertaken for Step2Get users and the non-participants (Control Group) in June 2010, two weeks after the behaviour change intervention was stopped. There was a 31.5% response rate equal with 79 questionnaires for the Step2Get user questionnaires, while 373 non-participants returned 20.4% response rate.

a week. However, this increment was almost four times larger for the participating students (6.33 percentage points) compared to the non-participating students (1.65 percentage points). An analysis of the student population which never walked to school revealed an 8.86 percentage point reduction of that group for participants while the percentage of non-participants who never walked did not change at all. The survey results for walking from school, for which participants did not receive rewards, show that there was a 5.06 percentage point increase for participants and a 3.31 percentage point increase for non-participants in the frequency of walking 5 times a week to school.

The third measure of habitual travel behaviour that was surveyed was the intention of participants and non-participants to walk for non-school journeys. 49.37% of Step2Get users stated that they intent to walk to non-school destinations compared to 33.88% for non-participants. A Chi Square Test revealed that this difference between participants and non-participants is statistically significant ($p < .001$).

The fourth measure of habitual travel behaviour that was surveyed was attitude towards walking 'before' and 'after' the Step2Get scheme for participants and non-participants. 75.56% of the participants and 20.66% of the non-participants who previously had negative or neutral attitudes about walking developed a more positive attitude. A Chi Square Test was run, which shows that this difference between the attitude change of the participants and the attitude change of the non-participants is statistically significant ($p < .05$). Further, not a single participant changed from a positive or neutral attitude towards a negative attitude, whereas 18.29% of non-participants developed a more negative attitude towards walking.

The survey results from the four measures of habitual travel behaviour suggest that the combination of enforcing deliberation about walking as an alternative travel behaviour and issuing temporary rewards for walking repeatedly may effectively disturb and disrupt the retrieval of the existing 'bus' script and promote the formation of a 'walking' script. This new 'walking' script has been shown to both persist despite the end of the rewards and to extend to journeys other than the one for which the incentives were issued in the first place. The results for the modal share show that there is a significant increase in the number of participants who walk and that this increase persists even after the rewards have stopped.

This suggests that a noticeable proportion of the participants has replaced their 'bus' script with a 'walking' script, presumably because the subjective value of walking has surpassed the subjective value of taking the bus. This argument is supported by the results for the second and third measure of habitual travel behaviour. The second measure suggests that participants have extended their recently formed walking script to journeys from school even though they did not receive any additional rewards for this journey in the first place. The results for the third measure show that after the end of Step2Get, participants are significantly more likely to consider walking in their script-based decision making process for journeys to non-school destinations, which suggests that walking has become

more of a norm. If this is true, then the participants should prefer to walk whenever confronted with a new, non-scripted but walkable destination.

The results from the final measure show that for participants positive attitudes towards walking were significantly more prevalent after the intervention. This suggests that some students corrected their exaggeratedly negative attitude towards walking as a result of their experience of walking to school on a regular basis for the purpose of attaining some reward. A positive attitude towards walking is a fruitful breeding ground for the development and maintenance of an actual preference for walking that will influence current and future scripts.

The synopsis of the assessed travel behaviour measures enables a comprehensive evaluation of the impact of Step2Get on habitual travel patterns, and the observed results demonstrate that these habitual travel patterns have changed in the direction of the desired outcome – more walking.

Limitations of the project approach

Generally the scheme was very well received by the students, the parents, the school and even by the media. During this research study it became clear that there are some limitations in the Step2Get scheme applied at the Ricards Lodge School, and that these limitations should be addressed in any related future schemes.

While analysing the survey results it became apparent that many students who registered with Step2Get were already walking to school at that time. Future applications of Step2Get or related types of interventions should avoid wasting rewards for encouraging an already existing desirable behaviour. This is highlighted by the following comment made by one of the Year 10 students: *Waste of money - people who walk up the hill will walk up even if this doesn't exist.*

Several students highlighted their concern, which is to some extent shared by the author that handing out rewards corrupts the decision making of students. Further, handing out rewards may possibly undermine other travel behaviour change programmes, for example the TfL School Travel Programme, as students might expect a reward for any subsequent travel behaviour change. A Year 10 student commented: *Good, but I don't think you should give children an incentive to walk. If their parents feed them fat it is not going to make a difference. In future they won't walk as they won't get an incentive so they will drive - I don't see the real point of the scheme.* Future projects can mitigate this concern by integrating Step2Get into the wider other education programmes that are running parallel to the intervention.

Another issue to be addressed is the parents' involvement in the scheme, as there were several cases where students were not allowed to participate in Step2Get due to parental safety concerns about walking. In future schemes incentives could be extended to also include parents as well as students.

Conclusion

The Step2Get scheme was robustly evaluated with regards to its performance in the reduction of overcrowding, the improvement of bus operation and the impact the habitual travel patterns of participants. Limitations were highlighted and should be addressed by future schemes. Nevertheless, the results of this pilot study are promising and justify future applications of similar or related types of behaviour change interventions that might even target other populations and journey destinations, such as universities or work places.

As highlighted in the introduction, urban areas suffer from congestion on the roads, overcrowding on the public transport network, air pollution and health issues. The approach of Step2Get could present a suitable solution to tackle them and its core idea of shifting demand to environmentally sustainable and healthier modes of transport presents an alternative to increasing road or public transport capacity. Therefore this intervention should be included in the standard portfolio of travel demand management tools (e.g., road pricing or work travel planning) that are applied by urban and transport planners to manage travel demand as an alternative to increasing capacity. In this regard, it should be noted that one of the major assets of the behaviour change intervention outlined and evaluated here is that it does not need to be applied permanently. Rather, it may well be that temporary travel demand management efforts, such as rewards for walking, may result in lasting sustainable mobility choices benefits for urban mobility.

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