



Johannesburg
South Africa
1-31 October
EcoMobility
World Festival
2015



Promoting sustainable mobility – key theoretical and practical issues

EcoMobility Dialogues / Technical Paper

January 2016

By Carlos Felipe Pardo

In brief:

This document defines promoting sustainable transport use as the act of implementing strategies aimed at shifting people's attitudes and behaviors in favor of sustainable transport as a transport mode for some (or all) trips. Using this definition, this document focuses on a number of elements that are key to understanding how to change attitudes and behaviors. For more information on the specific aspects of attitudinal versus behavioral change or the profile of bicycle users see (Gatersleben & Haddad, 2010), and for an examination of the differences in personality, the psychological experience of bike users as compared to other modes, or the reasons why cars have characteristics akin to a power or status symbol see (Pardo, 2006).



The EcoMobility World Festival 2015

The EcoMobility World Festival 2015 will take place in the CBD of Sandton, Johannesburg – the vibrant heart of South Africa – in October. The Festival will offer a view of cities in the future, with active street life and social inclusivity, served by a sustainable transport system.

As part of the EcoMobility World Festival, the EcoMobility Dialogues aim to encourage local and international dialogue and informed conversations about the future of urban mobility and the need for innovation to meet the needs in developing cities.

The Technical Papers: Contributions to the EcoMobility Dialogues 2015

In the course of preparing the EcoMobility Dialogues 2015 in Johannesburg, South Africa, experts have been asked to prepare and present technical papers on topics that challenge urban mobility today.

Five such technical papers have been compiled:

- Transferring sustainable transport and EcoMobility solutions
- Transport and climate change
- Sustainable development synergies and co-benefits of low-carbon transport measures
- A call to action on green freight in cities
- Soot-free urban bus fleets
- Promoting sustainable mobility

The findings and messages of this paper are part of informing local leaders for their debates and provide input to the "Johannesburg Declaration on Climate Smart Cities". They will be further shared within ICLEI's EcoMobility Alliance (www.ecomobility.org) and are made available to a wider audience.

We cordially thank the author of **Promoting sustainable mobility** for his enormous work and input and for enriching technical and political debates around how we can generate more livable cities while contributing to a low carbon development.

September, 2015. Copyright owned by author.

Further information

EcoMobility World Festival 2015 Team
ICLEI - Local Governments for Sustainability
Kaiser-Friedrich-Strasse 7
53113 Bonn, Germany
E: ecomobility.festival@iclei.org
T: +49 228 976 299 54
F: +49 228 976 299 00
www.ecomobilityfestival.org

Transport and Climate Change

Author

Carlos Felipe Pardo; Founder and executive director; Fundación Despacio, Colombia.

Executive Summary

Sustainable transport policy ideas generally include a large array of interventions that include infrastructure, regulation improvements but also promotion. The latter is normally not the strongest component of policies and needs to be strengthened. Many promotion strategies are designed by professionals who are not knowledgeable of behavior change theory and thus they could potentially have better results. This document aims at improving that situation.

This document defines promoting sustainable transport use as the **act of implementing strategies aimed at shifting people's attitudes and behaviors in favor of sustainable transport as a transport mode for some (or all) trips**. Using this definition, this document focuses on a number of elements that are key to understanding how to change attitudes and behaviors. For more information on the specific aspects of attitudinal versus behavioral change or the profile of bicycle users see (Gatersleben & Haddad, 2010), and for an examination of the differences in personality, the psychological experience of bike users as compared to other modes, or the reasons why cars have characteristics akin to a power or status symbol see (Pardo, 2006).

The document is organized in three main sections: the first of these outlines theoretical elements related to promoting sustainable transport. The second of these provides indications of practical issues that must be taken into account, and the third describes the key steps to develop a promotion strategy. This document is expected to complement practical guides of promotion.



Table of Contents

Table of Contents	4
Introduction.....	5
I. Main Theoretical Concepts.....	6
Mode Shift	7
Awareness and Behavioral Change	8
Stages of Change	8
Zones of Proximal Development	9
Three Information Channels.....	10
Linking Promotion Concepts	11
II. Main issues to confront.....	12
Government Programs vs. Activist Programs.....	12
Messaging to Potential Users and Non-Users	12
Role of Social Media	13
III. Key Steps to develop a strategy	13
IV. References.....	14

Introduction



Sustainable transport policy ideas generally include a large array of interventions that include infrastructure, regulation improvements but also promotion. The latter is normally not the strongest component of policies and needs to be strengthened. Many promotion strategies are designed by professionals who are not knowledgeable of behavior change theory and thus they could potentially have better results. This document aims at improving that situation.

This document defines promoting sustainable transport use as the **act of implementing strategies aimed at shifting people’s attitudes and behaviors in favor of sustainable transport as a transport mode for some (or all) trips**. Using this definition, this document focuses on a number of elements that are key to understanding how to change attitudes and behaviors. For more information on the specific aspects of attitudinal versus behavioral change or the profile of bicycle users see (Gatersleben & Haddad, 2010), and for an examination of the differences in personality, the psychological experience of bike users as compared to other modes, or the reasons why cars have characteristics akin to a power or status symbol see (Pardo, 2006).

The document is organized in three main sections: the first of these outlines theoretical elements related to promoting sustainable transport. The second of these provides indications of practical issues that must be taken into account, and the third describes the key steps to develop a promotion strategy. This document is expected to complement practical guides of promotion.

I. Main Theoretical Concepts



The main theoretical concepts presented in this chapter are explained in further detail in (Bicycle Federation of America, 1999; Gleason, 2008; Jensen Andresen, T., Hansen, W., Kjaergaard, E., Krag, T., Larsen, J., Lund, B. & Thost, P, 2000; Pardo, 2006, 2012; Puellas, 2008; UNEP RISOE Center & Solutiva Consultores, 2008). They are presented here briefly.

Mode Shift

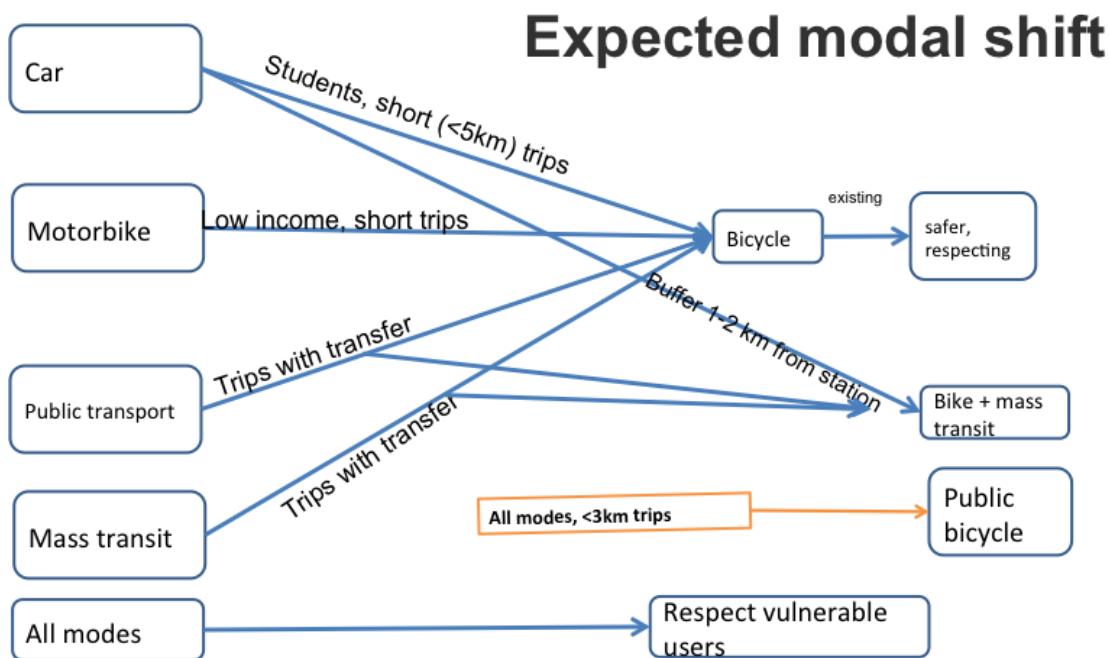


Figure 1. Mode shift model used in a workshop in Bogotá, Colombia.

One of the main goals in promoting sustainable transport is to generate a shift towards modes with fewer social, environmental and economic externalities. These include walking, biking, public/mass transport, or some combination of these modes. It is important to recognize that said trips must shift from other modes. The aim includes that people to replace trips in a motor vehicle (ideally individual vehicles like cars and motorcycles) with bike trips. This is especially important for medium-distance trips (up to 10 kilometers). Figure 1 presents an exercise from a workshop in Bogotá, Colombia. The exercise looked at potential mode shift to bicycles from other modes; the modes being shifted away from are on the left while the ones being shifted towards appear on the right. The arrows indicate specific mode shifts, with the trips or populations likely to make this change.

This is useful to describe because there are many initiatives that promote transport (or transport systems) without generating an effective mode shift. Instead, they sometimes create additional trips. An example of this is public bicycle systems, which generate a significant proportion of new trips (see (Fuller, Gauvin, Kestens, Morency, & Drouin, 2013) for a fuller discussion of the issue). Although it is possible that this effect can be counteracted with a general improvement in sustainable transport, the main objective of a promotion campaign should be a mode shift towards bicycle use and away from unsustainable or less sustainable modes (Pardo, 2012).

Awareness and Behavioral Change



Although it is important to change attitudes towards and knowledge about sustainable transport (and bicycle use), for these changes to be relevant, there must be behavioral change as well. In other words, a population convinced that bicycles are a sustainable transport mode is irrelevant if people do not use bikes for transportation. The literature on attitudinal and behavioral change has identified a phenomenon in which people change their attitude but not their behavior. The classic example of a smoker who knows they will die young from smoking but does not stop can be used in the case of sustainable transport.

Stages of Change

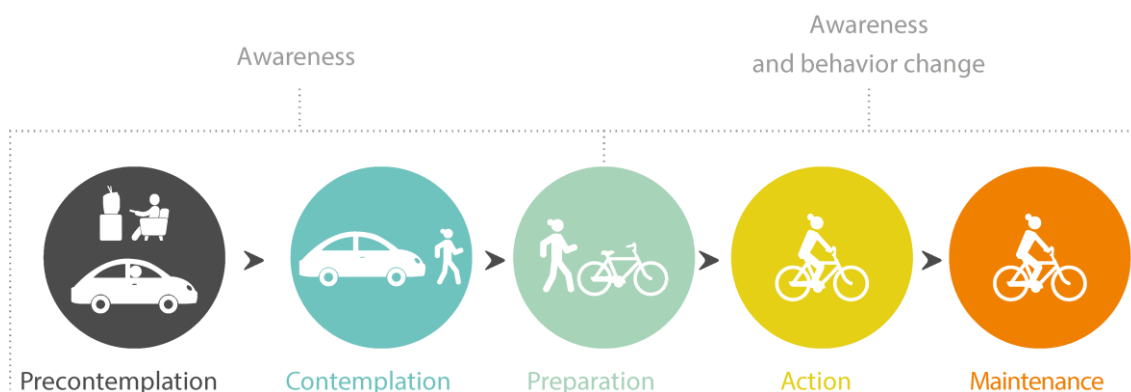


Figure 2. Stages of change (Prochaska et al), adapted to sustainable transport

Source: Pardo, 2006

Promoters of physical activity have used the cross-theoretical model of stages of change (Prochaska & DiClemente, 1992) as a conceptual basis. Although this model has been criticized within this

context, it is useful for a schematic analysis of sustainable transport. The concept of “zones of proximal development,” described in the next section, is particularly relevant.

The cross-theoretical model divides behavioral change into five stages, adapted here to the case of mode shift towards sustainable transport (see also Figure 2).

Pre-contemplation: Here the user does not see the relevance of changing to sustainable modes and/or is not conscious of these modes’ existence. In the case of bicycles, they see them as tools for recreation or sports but not as a transport mode.

Contemplation: In this stage, the user does perceive sustainable transport as possible transport modes (and/or the relevance of shifting to sustainable transport) but has still not changed or thought about changing their transport mode. During this stage, there begins to be a change in attitude.

Preparation: The user is now interested in the bicycle as a form of transport and is better informed about its characteristics. This stage witnesses a change in attitude but not in behavior.

Action: In this stage, the user has ridden a bicycle as a form of transport at least once for certain trips. Here we begin to see a significant change in attitude and the beginning of a behavioral shift.

Maintenance: Sustainable transport is the user’s form of transportation for most trips. At this point, there is a change in attitude and behavior.

It is important to clarify a few things regarding the model’s application. There are people that use bicycles out of necessity and do not have a positive attitude towards them (these people would still be in the pre-contemplation stage, for example a low-income person who cannot afford to use the bus for a long trip.) There is also an important stage that Prochaska’s model does not include: post-maintenance. To avoid theorizing for the sake of it, we do not describe post-maintenance as a “sixth stage” or look at the studies that examine it.

Zones of Proximal Development

To complement the idea of stages of change, it is worth considering Vygotsky’s theory (Vygotsky & Cole, 1978) of “zones of proximal development” and “scaffolding,” a theory developed further by Bruner (Bruner, 1982). These theories are particularly relevant to transport, given that travel is a daily activity for most city dwellers.

The zone of proximal development refers to the idea that a person can learn things that are conceptually close to what they already have learned. In the case of promoting bicycles as a form of transport, the zone of proximal development would be the possibility of a person using a transport mode “close” to their current one. Following this logic and the described stages of change, a person could move from pre-contemplation to contemplation, and from contemplation to preparation. However, it is unlikely that someone would move directly from pre-contemplation to action or maintenance, except in extreme cases of a radical change in habits, such as a mid-life crisis (Jaques, 1965).

“Scaffolding” meanwhile, is the process in which people learn or change behaviors through strategies that encourage them to understand the next stage of learning through examples, or in this case, sustainable transport experiences close to their current ones.

For this reason, promotion strategies should understand clearly at what stage of change the population (or part of it) is. Such an understanding produces an effective promotion campaign that leads people towards sustainable transport modes or stages of change close to their current ones.

Three Information Channels

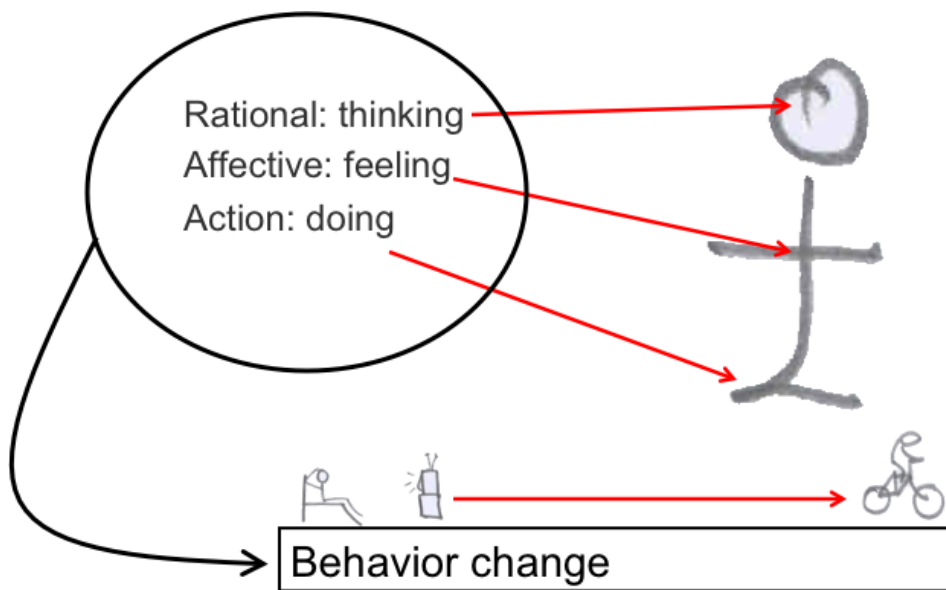


Figure 3. The three promotion channels according to the theory of attitudes

Source: Pardo, 2006

The theory of attitudes (Maio, 2010) describes three main components of attitude (see a graphic representation in Figure 3):

- **Rational channel / component:** This channel contains information and hard data about transport. This is said to reside in the “left hemisphere” of the brain (Kandel & Schwartz, 2013), providing a rational basis for possible behavioral change.
- **Affective channel:** This refers to the channel containing emotional information, which can be used to persuade people to change their attitudes (and perhaps behaviors) towards sustainable transport. This is typically used in promotional campaigns, with persuasive images and messages that do not necessarily contain rational or informative content.
- **Action (physical) channel:** This component includes everything involving specific actions, particularly in the case of bicycle use discussed in this report. This takes the form of organized bike rides or activities that promote bicycles as a form of transport.

Linking Promotion Concepts

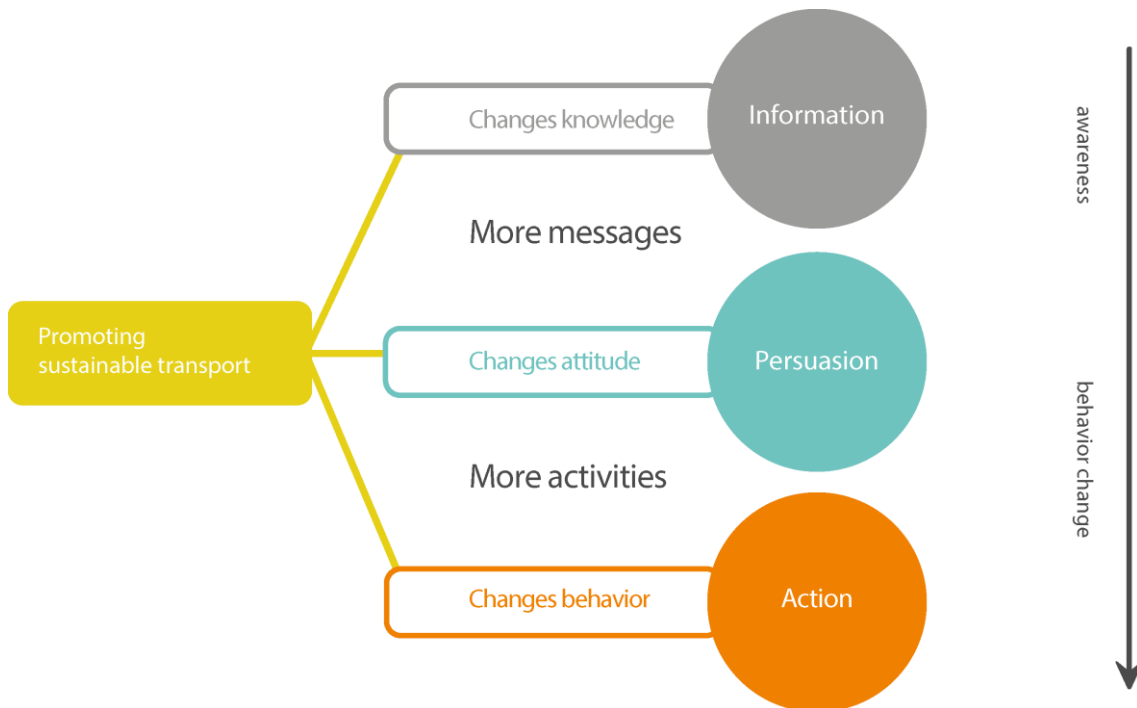


Figure 4. Linking promotion concepts into a strategy

Figure 4 outlines the combination of the conceptual elements described above. It is clear that carrying out promotional activities that contain informational, affective and action-oriented elements can create a shift in knowledge, attitudes and behaviors. A combination of messages and activities can result in the effective promotion of bicycles as a form of transport, as well as more bike trips. To effectively promote bicycle use, it is necessary to combine messaging and activities of the types described above, consciously linking the population according to segments and states of change.

II. Main issues to confront



More practically, there are various issues that need to be confronted when it comes to promoting sustainable transport. Generally, promotion activities are done but the smaller nuances are neglected. Below are some of these topics that must be taken into account for an effective promotion strategy.

Government Programs vs. Activist Programs

It is important to note that programs, strategies or activities can come from government or civil society (activism and other types). Programs, strategies and activities are most effective when they are consistent with one another and seek a common goal through complementary work. When there are conflicts between government and citizen promotional activities, it is likely that a bicycle campaign or strategy will not be very effective. Though civil society can be critical of policies, they can also work together towards a common goal though respecting differences.

Messaging to Potential Users and Non-Users

Campaigns can, and perhaps should, include specific messaging for the segments of the population they wish to convince to ride a bike. They should also include messages for people who are not going to change their behavior but should still respect vulnerable road users. These two actions can bring about more effective changes in promotion than a singular focus on increasing bicycle use.

Role of Social Media

The most important point here is that although social media is a good tool for increasing knowledge and persuading users, it should be complemented with other types of activities, namely action/physical ones. This combination will lead to an effective change in behavior and increased bicycle use. There is a great discussion regarding the real effectiveness of social media outlets and if they really create policy change or even individual change. This issue has yet to be resolved (Alterman, 2011) but care must be taken in order to avoid overreliance on this type of media and complementing it with other “real” activities.

III. Key Steps to develop a strategy



Seven key steps are needed to carry out an effective promotional strategy or campaign around bicycle use.

1. Learn about the **population**: It is essential to learn about the population through surveys, interviews, focus groups and other methods. Doing so makes it is easier to execute the subsequent steps for an effective promotional strategy.
2. Define the campaign’s **objectives**: Campaigns, strategies or actions should have clear objectives in terms of increasing knowledge, excitement or actions around sustainable transport (or attitude/behavior towards bicycles). These objectives should follow the population’s stages of change, as identified in the previous step.

3. **Separate** the population according to objectives: Using knowledge about the population, the campaign, strategy or action should separate the group into segments according to its stages of change, gender, age ranges or other parameters that can help make a strategy's messaging clearer.
4. Develop **messaging** and images for each segment: Specific messaging can be developed to achieve each objective, using knowledge of the population, the definition of objectives and the separation of the population into segments.
5. Define **messages for each segment** of the population: messaging should be defined for each population segment (or groups of segments) relevant to the strategy. This reduces waste in messaging and outreach to segments of the population that will not change their attitudes or behaviors. The images produced should respond to the previous steps.
6. Determine **communication modes** and channels: Once the messages of a strategy are defined, one can determine the best modes or channels to spread them. Mass media should be used for messages that are effective for all parts of the population while more focused modes are more suited to specific segments.
7. **Implementation:** The final step is to implement and then evaluate the strategy.

It is worth mentioning that the steps described here should be connected in some way. For a campaign to be effective, it must link knowledge about the population to its segmentation and other steps. This may seem obvious but there are numerous examples of strategies that carry out several of the steps without linking them in a logical way.

IV. References

- Alterman, J. B. (2011). The revolution will not be tweeted. *The Washington Quarterly*, 34(4), 103–116.
- Bicycle Federation of America. (1999). *Guide to bicycle advocacy*. Washington: Bikes Belong Coalition.
- Bruner, J. (1982). The language of education. *Social Research*, 835–853.
- Fuller, D., Gauvin, L., Kestens, Y., Morency, P., & Drouin, L. (2013). The potential modal shift and health benefits of implementing a public bicycle share program in Montreal, Canada. *The International Journal of Behavioral Nutrition and Physical Activity*, 10(1), 66.
<http://doi.org/10.1186/1479-5868-10-66>
- Gatersleben, B., & Haddad, H. (2010). Who is the typical bicyclist? *Transportation Research Part F: Traffic Psychology and Behaviour*, 13(1), 41–48. <http://doi.org/10.1016/j.trf.2009.10.003>
- Gleason, R. (2008). *Guide to Promoting Bicycling on Federal Lands*. (Federal Highway Administration, Ed.). Lakewood: Western Transportation Institute.
- Jaques, E. (1965). Death and the mid-life crisis. *The International Journal of Psycho-Analysis*, 46(4),

- 502–14. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/5866085>
- Jensen Andresen, T., Hansen, W., Kjaergaard, E., Krag, T., Larsen, J., Lund, B. & Thost, P, S. (2000). *Collection of cycle concepts*. Copenhagen: Road Directorate.
- Kandel, E., & Schwartz, J. (2013). *Principles of Neural Science, Fifth Edition*. McGraw-Hill Education. Retrieved from <http://books.google.com.co/books?id=s64z-LdAlsEC>
- Maio, G. R. (2010). *The Psychology of Attitudes and Attitude Change*. SAGE Publications. Retrieved from <http://www.barnesandnoble.com/w/psychology-of-attitudes-and-attitude-change-gregory-r-maio/1100205580?ean=9781412929752>
- Pardo, C. (2006). *Sensibilización ciudadana y cambio de comportamiento en transporte sostenible*. (GIZ, Ed.). Eschborn: GIZ.
- Pardo, C. (2012). *ESTRATEGIAS PARA LA PROMOCIÓN DE TRANSPORTE SOSTENIBLE Y BAJO EN CARBONO PARA AMÉRICA LATINA*. Washington D.C., USA: Clean Air Institute. Retrieved from <http://www.cleanairinstitute.org/caifiles/file/Promo-Nov8-CFP.pdf>
- Prochaska, J. O., & DiClemente, C. C. (1992). Stages of change in the modification of problem behaviors. *Progress in Behavior Modification*, 28, 183–218. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/1620663>
- Puelles, P. (2008). Promoción del uso de la bicicleta en Perú. (S. de la Bicicleta, Ed.). Bogotá: Cámara de Comercio de Bogotá.
- UNEP RISOE Center, & Solutiva Consultores. (2008). *ESTUDIO “PROMOCIÓN DE TRANSPORTE SUSTENTABLE EN LATINOAMÉRICA, CONCEPCIÓN, CHILE”, INFORME 1*. Concepción, Chile.
- Vygotsky, L. S., & Cole, M. (1978). *MIND IN SOCIETY*. Harvard University Press. Retrieved from http://books.google.com.co/books?id=RxjjUefze_oC