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Original article

Exploring people's willingness to bike using a combination of the theory of planned behavioural and the transtheoretical model



Exploration de la volonté des gens d'utiliser le vélo à partir de la combinaison de la théorie du comportement planifié et du modèle transthéorique

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ABSTRACT

Introduction. – The amount of travel by car is increasing, leading to negative effects on our environment and on our own quality of life. In order to achieve a change in a more pro-environmental direction, it is important to understand the decision making process of travel behavior.

Objective. – The aim of this study is to explore important factors determining people's willingness to bike using two well-established theories namely: the theory of planned behaviour (TPB) and the transtheoretical model of change (TTM). Studies have found that habits help to understand travel mode choice a further aim was therefore to determine the relationship between habit and TTM.

Method. – This study included a sample of 414 people drawn from the general public who had to respond to a questionnaire based around a journey they most often made during one week.

Results. – The results confirmed that the constructs, as measured by the TPB, only distinguished between precontemplation and contemplation and between preparation and action. The introduction of habit revealed that it was mainly people at the first and the last stage where the behaviour could be considered to be automatic. The results also showed that the relationship between the TPB and the TTM was mainly linear, but also quadratic. This study explored respondents' behavioural beliefs and based on these results, using factor analysis, three components were presented. In general people agreed that cycling was good for their health and the environment. What differentiated them were aspects related to the pros and cons of cycling, perceived consequences became more positive and less negative with advancing stages.

Conclusion. – This study suggests that the combination of TPB and the TTM is useful when trying to understand modal choice. However, the study strongly argues that it is the multidimensional nature of the constructs, which is interesting rather than purely focusing on separate ones. It also suggests that even if short-term benefits are strongly related to the process of change, negative ones need to be addressed and taken seriously if we want people to persist with their new behaviour. Implications of the current findings for the description of people at the different stages are discussed.

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R É S U M É

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Introduction. – Le nombre de déplacements en voiture, qui est en augmentation, engendre des effets négatifs sur notre environnement et sur notre propre qualité de vie. Il est important de comprendre le processus de décision sous-jacent aux comportements de déplacements pour atteindre un changement dans une direction davantage pro-environnementale.

Objectif. – Le but de cette étude est d'explorer les facteurs importants qui déterminent la volonté de se déplacer à vélo en se référant à deux théories bien établies à savoir : la théorie du comportement planifié (TCP) et le modèle transthéorique de changement (MTC). Des études ont montré que les habitudes aident à comprendre le choix du mode de déplacement, un autre objectif a donc été d'examiner la relation entre habitude et MTC.

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Méthode. – Cette étude comprenait un échantillon de 414 individus issus d'une population générale qui a répondu à un questionnaire portant sur un trajet qu'ils ont fait le plus souvent au cours d'une semaine.

Résultats. – Les résultats confirment que les construits, tels que mesurés par la TCP, permettent uniquement de faire une distinction entre la précontemplation et la contemplation et entre la préparation et l'action. L'introduction de l'habitude a révélé que c'était principalement les gens à la première et la dernière étapes lesquels le comportement pouvait être considéré comme automatique. Les résultats ont également montré que la relation entre la TCP et le MTC est principalement linéaire, mais aussi quadratique. Cette étude a exploré les croyances comportementales des répondants pour lesquelles l'analyse factorielle a permis d'extraire trois composantes. En général les gens sont d'accord pour dire que le vélo est bon pour leur santé et l'environnement. Ils se différencient sur les aspects liés aux avantages et aux inconvénients du vélo, aux conséquences perçues qui sont devenues plus positives et moins négatives avec la progression des étapes.

Conclusion. – Cette étude suggère que la combinaison de la TPB et du MTC est utile quand on essaie de comprendre le choix modal. Cependant, l'étude soutient que c'est la nature multidimensionnelle des construits qui est intéressante plutôt que de considérer chacun d'eux séparément. Elle suggère également que même si les avantages à court terme sont fortement liés au processus de changement, les effets négatifs doivent être documentés et être sérieusement pris en compte si nous voulons que les gens persistent dans leur nouveau comportement. Les implications des conclusions de l'étude concernant la description des gens aux différents stades sont discutées.

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1. Introduction

Over the past 30 years car use has increased exponentially and according to a large survey, including all EU member states, 53% of the population use a car as their main means of transport (The Gallup organization, Hungary, 2011). The domination of the car, as a mode of transport, has negative effects on our environment and on our own quality of life (see e.g., Van Wee, 2007; Miedema, 2007). Cleaner cars can help solve the problem of air pollution but no other equally important ones, which have a direct effect on our quality of life such as: traffic accidents, congestion, noise, stress and insufficient physical activity (see EU, 2011a). Insufficient physical activity is related to a number of medical problems, including obesity, which in turn can be related to modal choice, since countries with high levels of cycling and walking also have low obesity rates (Bassett, Pucher, Buehler, Thompson, & Crouter, 2008). It can therefore be concluded that the current use of the car is not sustainable and that it has to decrease (e.g., Bamberg, 2007; Heath & Gifford, 2002; Steg & Gifford, 2005). In order to make people less dependent on their cars a number of actions have been outlined by the European Commission and one of them targets the traveller him/herself via education, information and awareness campaigns (EU, 2011b). The starting point for developing effective measures persuading people to change is to identify factors important for choosing different travel modes. This will include an understanding of travellers' needs and interests but also barriers to change. The aim of the present study is to increase our understanding of important factors determining willingness to bike, using two well-established theories, namely the theory of planned behaviour (TPB) and the transtheoretical model of change (TTM).

1.1. Theoretical framework

The theory of planned behaviour (TPB) predicts that a person's behaviour is a function of behavioural intention, which in turn is a function of attitudes, subjective norms and perceived behavioural control (Ajzen, 1991). These constructs, also described as global or direct measures, are determined by three belief-based, or indirect measures, namely: behavioural beliefs, normative beliefs and control beliefs. The differences between global measures and belief-based measures has been described as follows: "the global measure focuses directly on the concept in question, the belief-based measure focus on the presumed determinants from which the concept can be inferred" (Ajzen & Driver, 1991, p. 188). In

research, the belief-based measures are of great interest since they provide a deeper understanding of what motivates the person to act.

The model's ability to predict intention has been tested in a great number of studies and in recent years this also includes travel behaviour (Bamberg & Schmidt, 2003; Eriksson & Forward, 2011; Forward, 2004; Heath & Gifford, 2002).

Attitude is an important concept within the theory and is said to be functional since it meets certain individual needs (Katz, 1960). Initially, the formation of new attitudes is a conscious process but later, when the attitude has become more established, the behaviour is conducted without any deeper reflection. The behaviour will then be persistent until something challenges the motive behind the action.

At this stage it could be argued that the behaviour has become habitual. Habit is not included in the TPB but has been added to explain different behaviours including travel behaviour (e.g., Thøgersen, 2009; Verplanken, Aarts, van Knippenberg, & Moonen, 1998). When trying to change people's travel behaviour, it has been demonstrated that habit is an important factor since those with strong habits are less likely to be open for information about alternative modes of transport (Verplanken, Aarts, & van Knippenberg, 1997). However, the measure of habit has varied a great deal. Sometimes habit is treated in the same way as past behaviour, which would be a mistake since the first is not necessarily the same as the latter, unless it has been repeated regularly. If the behaviour has been repeated frequently, the highly practised act gradually recedes from consciousness and the response becomes more and more automatic (i.e. habitual). To measure habit, Verplanken and Orbell (2003) developed a self-report habit index (SRHI), which included ten items exploring both if the behaviour has been automatic or not and how frequently it has been executed. The formation of habits has also been studied and Lally, van Jaarsveld, Potts, and Wardle (2010) found that on average it took 66 days to form a habit (ranged from 18 to 254 days). They also found that there was a point when the behaviour could not become more automatic. The conclusion was that if an intervention should succeed the participants' need to be supported for a fairly long period.

In addition to the TPB, which is a continuous model, the formation of a new behaviour can be further explained using stage models. These theories are important as they provide insight as to why, despite successful implementations in which a target group has accepted a certain behaviour (e.g. to use the bike), the desired

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