



Empowering interventions to promote sustainable lifestyles: Testing the habit discontinuity hypothesis in a field experiment



Bas Verplanken*, Deborah Roy

Department of Psychology, University of Bath, Claverton Down, Bath BA2 7AY, United Kingdom

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ABSTRACT

This study tested the habit discontinuity hypothesis, which states that behaviour change interventions are more effective when delivered in the context of life course changes. The assumption was that when habits are (temporarily) disturbed, people are more sensitive to new information and adopt a mind-set that is conducive to behaviour change. A field experiment was conducted among 800 participants, who received either an intervention promoting sustainable behaviours, or were in a no-intervention control condition. In both conditions half of the households had recently relocated, and were matched with households that had not relocated. Self-reported frequencies of twenty-five environment-related behaviours were assessed at baseline and eight weeks later. While controlling for past behaviour, habit strength, intentions, perceived control, biospheric values, personal norms, and personal involvement, the intervention was more effective among recently relocated participants. The results suggested that the duration of the 'window of opportunity' was three months after relocation.

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1. Introduction

Promoting environmentally friendly behaviours is arguably one of the most difficult behaviour change targets. When people are asked opinions on environmental issues such as global warming, many will express concerns and pro-environmental attitudes (e.g., Eurobarometer, 2014; Ipsos MORI, 2015; Verplanken & Roy, 2013). But when asked what the most important issues are today, the environment usually ends up low in these rankings (e.g., BBC, 2015; Gallup, 2015). Even if events such as hurricanes, flooding, or pollution, happen on the doorstep, the environment remains a distant and nebulous entity for most people (e.g., Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007; Whitmarsh, 2008). Consequently, as is predicted by construal-level theory of psychological distance (Trope & Liberman, 2010), mental representations of "the environment" are not conducive to taking pro-environmental action (Spence, Poortinga, & Pidgeon, 2012). Environmental issues can also be framed as social dilemmas, that is, conflicts between immediate self-interest and longer-term collective interest, which also weaken an individual's motivation to act (e.g., Biel & Thøgersen, 2007; Lorenzoni et al., 2007). Some barriers to pro-

environmental action are straightforward, in particular when people are restrained in their options, for instance due to inadequate public transport or limited financial resources. Gifford (2011) discussed a variety of psychological barriers to pro-environmental behaviour, such as judgemental biases, social comparison processes, psychological investments in current behaviours, and mistrust in authorities. In this article we focus on habit as a particular barrier to change. We will argue that while habits are hard to break, finding opportunities where existing habits are temporarily broken may make a behaviour change intervention more effective.

Many behaviours that are considered as potential targets for behaviour change in a more sustainable direction, such as transportation, shopping, leisure activities, or water usage, are strongly habitual. Habits are learned dispositions to repeat past responses (Wood & Neal, 2007; Wood & Rünger, 2016). These behaviours are conducted frequently, usually at the same location and time, and are less guided by conscious intent (e.g., Danner, Aarts, & de Vries, 2008; Gardner, 2009; Ji & Wood, 2007; Neal, Wood, Labrecque, & Lally, 2012; Ouellette & Wood, 1998; Triandis, 1977; Verplanken, Aarts, van Knippenberg, & Moonen, 1998; Wood, Quinn, & Kashy, 2002). While the prevalent socio-cognitive models suggest that control of behaviour is anchored in an individual's motivation or willpower (e.g., Ajzen, 1991), when habits are forming some of that control shifts to the environment, that is, to the cues that elicit the

* Corresponding author.

E-mail address: b.verplanken@bath.ac.uk (B. Verplanken).

habit (e.g., Neal, Wood, & Drolet, 2013; Neal, Wood, Wu, & Kurlander, 2011; Orbell & Verplanken, 2010; Wood & Neal, 2007; Wood, Tam, & Guerrero Witt, 2005). Habits are thus highly automatised behaviours (e.g., Aarts & Dijksterhuis, 2000; Verplanken & Orbell, 2003), or patterns of behaviour (e.g., Kurz, Gardner, Verplanken, & Abraham, 2015; Roy, Verplanken, & Griffin, 2015). This comes with a degree of ‘tunnel vision’, that is, a lack of choice awareness, superficial decision making, and little interest in new information, even if decision makers are explicitly asked to make deliberate choices (Aarts, Verplanken, & van Knippenberg, 1997; Verplanken, Aarts, & van Knippenberg, 1997).

The features which thus characterise habit – lack of conscious intent, a shift of behavioural control from willpower to cues, and ‘tunnel vision’ – are making existing habits resistant to change and thus do not bode well for behaviour change interventions. However, it is not always possible to execute a habit. Circumstances may arise or contexts may change which limit or block a habit, perhaps temporarily, and thus require considering alternative courses of action (e.g., Jones & Ogilvie, 2012). For instance, Fujii, Gärling, and Kitamura (2001) studied the effects of a temporary freeway closure on commuters. While habitual car users were likely to take a longer route rather than switching to a more efficient public transport option, some car users did try public transport and, finding out they had overestimated the travel time, continued to do so during the freeway closure. Brown, Werner, and Kim (2003) observed how car users switched to a light-rail option due to temporary parking shortages, and for some this remained a long-run choice maintained by the positive experiences. Verplanken, Walker, Davis, and Jurasek (2008) found that university employees who had recently moved house and were concerned about the environment were commuting more sustainably than those who were equally concerned, but had not relocated, suggesting that the relocation might have temporarily activated important environmental values (cf., Gatersleben, Murtagh, & Abrahamse, 2014; Verplanken & Holland, 2002).

These studies suggest that when habits are broken, this may create a “window of opportunity” for behaviour change. Change may occur spontaneously, for instance by discovering better options than the old habits, as supposedly was the case in the studies cited above. But this window may also be used strategically to promote behaviour change. Behaviour change interventions may thus be more effective when delivered in the context of major habit disruptions, such as those related to life course changes. This has been put forward as the *habit discontinuity hypothesis* (Bamberg, 2006; Verplanken et al., 2008; Walker, Thomas, & Verplanken, 2015). Major discontinuities may involve transitions to new phases in life (e.g., from education to a job), geographical or physical changes (e.g., residential or work-related relocations), or changes in the environment where habits are executed (e.g., infrastructural changes). Such discontinuities may force people to renegotiate ways of doing things, create a need for information to make the new choices, and a mind-set of being ‘in the mood for change’. Interventions that capitalise on these conditions may thus be more effective compared to interventions under default conditions.

A number of studies have investigated the effects of behaviour change interventions that were intentionally delivered in the context of a discontinuity. Bamberg (2006) provided residents who recently had relocated with a 1-day free public transport ticket and information about the available public transport services. The intervention induced a significant increase in the use of public transport compared to a control group of relocated residents who did not receive an intervention. Thøgersen (2012), in a secondary analysis of an intervention study in which participants were given a free one-month public transport pass, found that the intervention was only effective among participants who had recently moved

house or work place. Walker et al. (2015) followed workers of an organisation which had relocated and initiated a sustainable travel plan in the wake of it, and demonstrated how old habits decayed and new habits established.

While the studies cited in the previous paragraph produced results that are in line with the habit discontinuity hypothesis, they did not provide a test whether the discontinuity itself had a distinct role. In other words, these studies demonstrated that interventions delivered in the wake of a discontinuity were effective, but did not contrast the effects with a default condition in which participants did *not* go through a discontinuity. The present study aimed to provide such a test in a field experiment in a middle-large city in the east of England. The study included participants who had, versus had not, recently relocated, as well as an intervention versus no-intervention control group in both segments. The intervention consisted of face-to-face interviews and the provision of information about sustainable choices. The outcome consisted of self-reported frequencies of twenty-five environmentally relevant behaviours, which were assessed at baseline and eight weeks later. The hypothesis was tested that higher frequencies of behaviour are reported in the intervention versus control group eight weeks later, but that this effect is stronger when participants had recently relocated.

The effects were controlled for key determinants of environmental behaviour at baseline; past behaviour, habit strength, behavioural intention, perceived behavioural control, biospheric values, personal norms, and personal involvement (e.g., Steg, van den Berg, & de Groot, 2014; Steg & Vlek, 2009). Past behaviour obviously served as benchmark for change. Existing habit strength was included, as this might influence the resistance to change (Lewin, 2008/1946). Intention and perceived control represented the most proximal predictors of behaviour in the theory of planned behaviour (e.g., Ajzen, 1991), and thus covered the motivation to behave environmentally friendly and the perceived ability to do so, respectively. Biospheric values, personal norms, and personal involvement represented broader motivational, normative and identity-related factors which have been found related to related to pro-environmental behaviour and behaviour change (e.g., Göckeritz et al., 2010; Sparks & Shepherd, 1992; Stern, 1992; Thøgersen & Ölander, 2002; Verplanken & Holland, 2002; Whitmarsh & O’Neill, 2010).

2. Method

2.1. Participants and design

Participants were recruited among residents of Peterborough, a city in the east of England with approximately 186,000 citizens. A total of 1612 individuals were cold-contacted at the doorstep; 800 (49.6%) were willing to participate in the study.¹ Half of the participants were known to have relocated within the previous 6 months (“movers”). These households had been identified through property websites and contacts with developers who had been active in the recruitment areas. The remaining 400 participants were recruited from the same areas (“non-movers”). Movers and non-movers were matched on house size (number of bedrooms), home ownership, recycling facilities, and access to public transport.

Participants were assigned to an intervention or a control condition. In order to avoid neighbours being assigned to different

¹ Given the fact that participants were cold-contacted, and that participation involved a relatively lengthy first session on the doorstep, we considered this percentage as rather favourable. Participants were not systematically probed for reasons for non-participation.

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