Journal of Environmental Psychology 38 (2014) 104–115

Contents lists available at ScienceDirect

Journal of Environmental Psychology

journal homepage: www.elsevier.com/locate/jep

Review

An Integrated Framework for Encouraging Pro-environmental Behaviour: The role of values, situational factors and goals

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ARTICLE INFO

Article history:
Available online 18 January 2014

ABSTRACT

Many environmental behaviours involve a conflict between hedonic and gain goals versus normative goals; people often need to incur some costs to benefit the environment. Based on this assumption, we propose an integrated theoretical framework for understanding behaviour change that identifies two routes to encourage pro-environmental behaviour. First, the conflict between goals can be reduced by decreasing the (hedonic and gain) costs of pro-environmental choices. Although this route is important when pro-environmental choices are very costly, it may not result in sustained pro-environmental actions. Second, normative goals can be strengthened. This strategy may encourage pro-environmental actions, even when it is somewhat costly. We propose that the strength of normative goals depends on values and situational factors that influence the accessibility of these values. We discuss theoretical implications of our reasoning, and indicate how the integrated framework adopted in this paper may advance theory development and environmental policy making.

1. Introduction

The world is facing serious environmental problems related to, amongst others, global warming, urban air pollution, and scarcity of safe drinking water. These problems are, at least partly, rooted in human behaviour (DuNann Winter & Koger, 2004; Gardner & Stern, 2002; Vlek & Steg, 2007), and can thus be managed by changing the relevant behaviours so as to promote environmental quality. But how can we encourage individuals to engage in pro-environmental actions? Which motivations can best be targeted to promote behavioural changes? And what role do situational factors play in this process? There is much research on factors influencing behaviour and on effective ways to change behaviour. However, this research is not tied together in a comprehensive theoretical framework. Moreover, there seem to be conflicting views on what is the most effective strategy for behaviour change. This paper presents a theoretical framework, the Integrated Framework for Encouraging Pro-Environmental Behaviour (IFEP) that allows a more comprehensive and detailed study of the variables and processes that play a role in effective pro-environmental behaviour change.

1.1. The Integrated Framework for Encouraging Pro-Environmental Behaviour (IFEP)

As point of departure for the IFEP, we suggest that environmental behaviour often involves a conflict between different goals a person pursues. Goal framing theory (Lindenberg & Steg, 2007) suggests that three different types of goals (or motivations) govern environmental behaviour in a given situation[1]: hedonic goals, gain goals, and normative goals. Hedonic goals lead individuals to focus on ways to improve their feelings in a particular situation, such as avoiding effort, seeking direct pleasure or seeking excitement. Gain goals prompt people particularly to be sensitive to changes in their personal resources, such as money and status. Normative goals lead people to focus on the appropriateness of actions and make them especially sensitive to what they think they ought to do, such as contributing to a clean environment, or showing exemplary behaviour. These three goals steer attention and influence which information people detect, what knowledge is cognitively most accessible, what action alternatives are perceived, and how people will act in a specific situation. The goal that is strongest or

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[1] We define environmental behaviour (or actions) by its impact, that is, as any action that affects the quality of the environment, in either a positive or negative way, either resulting or not resulting from pro-environmental intent. We define pro-environmental behaviour as any action that enhances the quality of the environment, either resulting or not resulting from pro-environmental intent.

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http://dx.doi.org/10.1016/j.jenvp.2014.01.002

focal in a given situation (i.e., the 'goal-frame') will most strongly influence cognitive processes and decision making, while the other goals at the background increase (when they are compatible with the goal frame) or decrease (when they conflict with the goal frame) the strength of the focal goal. The changes of goals strength across situations are mostly not a conscious process; goals may be strengthened by individual dispositions and by subtle cues (as will be explained below) without individuals being aware of them (see also Lindenberg, 2012; Steg, 2012).

In principle, people may be motivated to engage in pro-environmental behaviour for hedonic reasons (e.g., because it is enjoyable), for gain reasons (e.g., because it saves money), or for normative reasons (e.g., because they think protecting the environment is the right thing to do). Yet, as suggested above, many (but not all, as we will explain later) pro-environmental actions involve a conflict between normative goals on the one hand, and hedonic and gain goals, on the other hand (e.g., Lindenberg & Steg, 2007; Nordlund & Garvill, 2003; Samuelson, 1990; Steg, Dreijerink, & Abrahamse, 2005; Steg & Nordlund, 2012). Although acting pro-environmentally is often considered to be the appropriate thing to do, it is in many cases less profitable, less pleasurable, more time-consuming or more effortful than environmentally-harmful actions. Organic products, for instance, are often more expensive than regular products, and using public transport is perceived as less convenient, slower and less pleasurable than travelling by car (Steg, 2003). Yet, buying organic products or using public transport will typically be considered as appropriate behaviours as they have a less negative impact on the environment.[2]

How can we encourage individuals to engage in pro-environmental actions, given this goal conflict? Our IFEP framework suggests two basic strategies to encourage pro-environmental actions. First, the actual or perceived outcomes of environmental behaviour can be changed, as to reduce or even remove the conflict between hedonic and gain goals, on the one hand, and normative goals, on the other. More specifically, the perceived costs (in a broad sense, including time, convenience, effort, money, comfort, etc.) of pro-environmental behaviour can be reduced, while its perceived benefits can be increased. For example, pro-environmental actions can be made (to be perceived as) more convenient, fun, cheaper or less effortful as to make such actions more attractive, even when hedonic and gain goals are focal. Similarly, costs and benefits of environmentally-harmful actions can be changed, as to make these options relatively less attractive. This strategy is commonly being applied in environmental behaviour research, by, for example, implementing information campaigns, pricing policies, or physical changes in the environment. A second, and to our knowledge novel, strategy is to strengthen normative goals, thereby weakening the relative strength of hedonic and gain goals. This approach will make people focus on the environmental outcomes of behavioural choices, which can encourage them to act pro-environmentally because they want to do the right thing, even though such actions may be somewhat less convenient or more costly. This strategy will not remove the conflict between normative and the other two goals, but rather make the conflict less prominent by reducing the value that people attach to hedonic and gain consequences of behaviour.[3]

In this paper, we elaborate on the IFEP framework and discuss to what extent and via which processes both strategies may result in sustained and robust pro-environmental actions. We also discuss why the adoption of the second strategy may encourage individuals to engage in pro-environmental actions even when these activities are associated with some personal costs, thereby testifying the relevance of this novel strategy to encourage pro-environmental actions. We first discuss briefly strategies that primarily target hedonic and gain considerations by reducing the (hedonic and gain) costs of pro-environmental behaviour, and identify some possible risks of exclusively relying on such strategies. Second, we elaborate on ways to strengthen normative goals. More specifically, we discuss to what extent normative considerations are an important predictor of pro-environmental behaviour, how they affect such behaviour, and whether pro-environmental actions can be promoted by targeting normative considerations. We will demonstrate that the strength of normative goals depends on individual factors (in particular biospheric values), as well as situational factors (that is, situational cues that activate or deactivate different types of values) that are generally overlooked in environmental behaviour research. Third, we explain that in some situations hedonic or gain goals can dovetail rather than conflict with normative goals. This possibility implies that pro-environmental actions can be promoted by explicitly linking hedonic and gain goals to normative goals, as far as doing the right thing can also make people feel good or increase their resources. Finally, we present the main conclusions, discuss theoretical and practical implications of the IFEP framework, and identify important topics for future research.

2. Making hedonic and gain goals compatible with normative goals

A first way to encourage pro-environmental actions is to reduce or even remove the conflict between normative goals, on the one hand, and hedonic and gain goals, on the other. By doing so, people would act pro-environmentally even when hedonic or gain goals are focal (and normative goals are relatively weak), for example because it is pleasurable or saves money. Examples include making pro-environmental products financially attractive via subsidies, increasing costs of environmentally-harmful actions via taxes, making pro-environmental actions fun (e.g., thefuntheory.com) or convenient (e.g., by increasing the availability of trash cans), or by making environmentally-harmful options less pleasurable (e.g., by implementing speed humps). Such interventions can be aimed at changing the actual costs and benefits (e.g., via pricing instrument, legal regulations, or physical changes; see Bolderdijk, Lehman, & Geller, 2012; Geller, 2002; Steg & Vlek, 2009) or the perceived costs and benefits of behavioural options (e.g., via information or persuasion strategies; cf. Steg & Vlek, 2009). For example, information can be provided on financial consequences of choices, thereby correcting possible misperceptions (e.g., Abrahamse & Matthies, 2012).

This route to promoting pro-environmental actions may be a necessary condition for behaviour change in some cases, particularly when environmentally-harmful options are much more

[2] This conflict between hedonic and gain goals on the one hand, and normative goals on the other hand has often been characterised as a social dilemma (Dawes & Messick, 2000; Vlek, 1996). Indeed, many environmental choices involve a large-scale social dilemma, that is, a conflict between individual interests (which are reflected in hedonic and gain goals) in the short term and collective interests (which are reflected in normative goals) in the long term. Many environmental problems will be significantly reduced only when many people collaborate, and as a consequence, individuals may hardly feel responsible for and capable of reducing these problems. This may inhibit individuals to act in the collective interest.

[3] Theoretically, goal conflicts could also be resolved by reducing the strength of normative goals, which will reduce the importance of environmental outcomes in choices made. We do not elaborate on this possibility, as this strategy would inhibit rather that encourage pro-environmental actions; this paper focuses on how to encourage pro-environmental actions.

attractive than their pro-environmental alternatives. For example, not many people would purchase an energy-efficient appliance that is twice as expensive as the regular option, and very few will be willing to take the bus to work rather than to drive when travel time would increase dramatically. Even those with strong normative goals would not readily engage in highly costly behaviour. In fact, high behavioural costs may make people focus on hedonic and gain goals rather than on normative goals and hence weaken the relative strength of normative goals, as we will explain later. Yet, it may be risky to target hedonic and gain considerations exclusively, as such strategies are likely to strengthen hedonic and gain goals, and push normative goals to the background. Doing so may inhibit sustained pro-environmental actions for several reasons.

First, by solely targeting hedonic and gain goals, people may adopt the view that it is only sensible and necessary to act pro-environmentally when it is convenient or financially interesting to do so (Thøgersen & Crompton, 2009), thereby undermining the influence of normative goals. As a consequence, people may cease to engage in other pro-environmental behaviours that are effortful, inconvenient, and financially unattractive. A recent experimental study, for instance, found that people who are prompted to consider economic rather than environmental reasons for acting pro-environmentally (in this case carpooling) are less inclined to recycle on a subsequent occasion (Evans et al., 2013).

Second, related to the first point, hedonic and gain goals may not provide a stable source of pro-environmental motivation: people are likely to act pro-environmentally only as long as it is pleasurable and profitable to do so (cf. De Groot & Steg, 2009). For example, in a recent field experiment, drivers received a discount on their insurance premium when they practiced a safe and environmentally-friendly driving style, particularly by keeping the speed limit (Bolderdijk, Knockaert, Steg, & Verhoef, 2011). Hence, keeping to the speed limit was not promoted by stressing that this was the appropriate thing to do (normative goal), but by making it profitable (gain goal). Results revealed that participants indeed committed fewer speeding violations (as registered via GPS devices) than a control group when the scheme was in place. However, speeding violations of the experimental group increased and differences between the experimental and control group disappeared as soon as the financial incentive was removed. Hence, participants committed to less speeding violations as long as it was profitable to do so, but refrained from doing so when the behaviour was no longer incentivised, suggesting that no stable behaviour changes occurred.

Third, targeting (and thereby strengthening) hedonic and gain goals may result in moral hypocrisy in which individuals want to appear moral (e.g., because this feels good) while, if possible, avoiding the costs of actually being moral. This possibility implies that people will be likely to refrain from moral behaviour when such behaviour is costly (Batson, Thompson, Seufering, Whitney, & Strongman, 1999; Lindenberg & Steg, 2013a, 2013b). Experimental research suggests that moral hypocrisy is more likely if hedonic and gain goals are strong, while it is less likely if normative goals are strong. For example, after experimentally strengthening hedonic goals, individuals provided strict moral judgements on norm transgressions of others, as it feels good to judge in a way a moral righteous person would do (which supports hedonic goals). However, they were not likely to engage in effortful moral actions that would inhibit the fulfilment of their hedonic goals (e.g., help another person; Batson et al., 1999; Lindenberg & Steg, 2013a; Steg, 2012). When normative goals were experimentally strengthened among individuals, however, they not only provided strict moral judgements, but were likely to engage in relatively costly moral behaviour as well. This finding suggests that individuals with strong normative goals are particularly motivated by doing the right thing and are less sensitive to effort (because their hedonic goals are relatively weak; Batson et al., 1999; Lindenberg & Steg, 2013a). Similar results were found for people with strong (experimentally manipulated) gain goals: they presented themselves as a moral person if it was profitable to do so, but they did not engage in costly moral actions (Ruepert, 2012). In contrast, again, when normative goals were experimentally strengthened, individuals were not only likely to present themselves as a moral person, but also more likely to engage in costly moral actions.

Fourth, importantly, as indicated above, by exclusively targeting hedonic and gain goals (e.g., via financial incentives), these goals will become more salient (and even may become the goal-frame), thereby undermining the influence of normative goals. As a consequence, in some cases this strategy may paradoxically inhibit, rather than promote, pro-environmental actions. Research, for instance, suggests that people with strong hedonic and gain goals will engage in pro-social actions only when potential (hedonic or gain) benefits are considered worth the effort, while people with strong normative goals are less sensitive to the amount of costs and benefits expected (cf. Heyman & Ariely, 2004). This focus on costs and benefits may be problematic as many pro-environmental actions yield small tangible benefits only (e.g., checking your tyre pressure will save about 0.90 Euro a month, and regularly defrosting your freezer will save about 0.50 Euro per month), suggesting that in such cases, highlighting the relevant (hedonic or gain) benefits may not outweigh the effort needed to change behaviour.

In sum, interventions that solely target hedonic and gain goals by reducing the costs of pro-environmental behaviour (or increasing the costs of environmentally-harmful behaviour) are likely to provide an unstable basis for promoting pro-environmental behaviour because they are likely to strengthen hedonic and gain goals and make these goals more influential in decision-making, thereby weakening normative goals to engage in other pro-environmental actions. People with strong hedonic and gain goals are likely to act pro-environmentally when this feels good or when it is profitable to do so, but try to avoid doing so when such behaviour is or becomes costly or effortful. Targeting and strengthening hedonic or gain goals may thus result in 'cheap morals', but not in sustained moral actions. As such, hedonic and gain goals provide an unreliable basis for sustained pro-environmental actions. We propose that for this reason, the second route should be followed as well: strengthening normative goals.

3. Strengthening normative goals

The second general strategy to encourage pro-environmental actions is targeting and strengthening normative goals. When normative goals are strengthened and become focal, individuals are focused on acting appropriately, such as benefiting other people, future generations, and the environment, which may promote pro-environmental actions, even when such actions involve some costs or effort. Indeed, many people do engage in pro-environmental actions, even though these actions may be costly. For example, many people recycle their waste (and even prefer to sort garbage themselves; Czajkowski, Kądziela, & Hanley, 2012), buy organic food, and support environmental organisations, despite that these behaviours involve obvious financial costs and effort. Various correlational studies showed that normative considerations and particularly pro-environmental considerations indeed promote pro-environmental, and more generally, moral actions (Aquino, Freeman, Reed, Lim, & Felps, 2009; Batson et al., 1999; Bolderdijk, Steg, Geller, Lehman, & Postmes, 2012; Dawes & Messick, 2000; Gärling, Fujii, Gärling, & Jakobsson, 2003; Haidt, 2007; Hopper &

Nielsen, 1991; Lindenberg & Steg, 2007; Schultz & Zelezny, 1998; Thøgersen, 1999; Vining & Ebreo, 1992). These studies suggest that people are likely to act upon normative goals, even when these conflict somewhat with hedonic and gain goals.

An important question therefore is: how can we strengthen normative goals? We propose that the strength of normative goals depends on which values people endorse, as well as on situational cues. More specifically, we argue that normative goals are likely to be chronically stronger when people endorse particular values, and that these values are especially influential when they are activated and supported by cues in the context in which decisions are made. In this section, we discuss that biospheric values are particularly relevant for understanding environmental behaviour and indicate how different values affect the strength of normative goals and subsequently influence pro-environmental actions. Next, we review situational factors that affect the extent to which individuals are likely to act upon their prominent values and argue that some situational factors may increase the likelihood of acting upon one's biospheric values, while other situational cues may inhibit pro-environmental actions, even though people do care about the environment and strongly endorse biospheric values.

3.1. Values

We propose that values affect the extent to which hedonic, gain, and normative goals are chronically accessible and salient in a given situation, and hence determine the likelihood that a particular goal will be(come) focal in that situation. Values are 'desirable goals, varying in importance, that serve as guiding principles in people's lives' (Schwartz, 1992, p. 21). Values are believed to transcend situations and affect a wide array of beliefs, attitudes, norms, intentions and behaviours (Feather, 1995; Gardner & Stern, 2002; Rokeach, 1973). Also, they are considered to be relatively stable over time. As such, values are conceptually different from the goals we discussed earlier: values reflect which overarching goals people find most important in life in general, whereas goals reflect what motivates people in a given situation, which not only depends on their values but also on situational cues, as we will explain in Section 3.2.

Studies revealed that environmental beliefs, attitudes, norms, intentions, and actions are particularly related to the strength of self-enhancement values (reflecting a key concern with one's individual interests) and self-transcendent values (reflecting a key concern with collective interests, see Dietz, Fitzgerald, & Shwom, 2005; Steg & De Groot, 2012, for reviews). Two types of self-enhancement values (i.e., hedonic and egoistic values) and two types of self-transcendence values (i.e., altruistic and biospheric values) have been distinguished that proved to be particularly relevant for understanding environmental beliefs and actions (Steg, Perlaviciute, Van der Werff, & Lurvink, 2014). Hedonic values reflect a key concern with improving one's feelings and reducing effort, while egoistic values make a person focus on safeguarding or increasing his or her resources. Altruistic values reflect a key concern with the welfare of others, and biospheric values reflect a key concern with nature and the environment for its own sake (De Groot & Steg, 2007, 2008; Steg, De Groot, Dreijerink, Abrahamse, & Siero, 2011; Steg et al., 2005; Stern, Dietz, & Kalof, 1993). Importantly, this value structure not only appeared in Europe (De Groot & Steg, 2007, 2008, 2010; Grønhøj & Thøgersen, 2009; Honkanen & Verplanken, 2004; Nilsson, Von Borgstede, & Biel, 2004; Steg et al., 2005, 2011, 2014), but also in other regions such as Asia, Latin America, and Africa (see Steg & De Groot, 2012, for a review). Not surprisingly, in general, individuals who strongly endorse self-enhancement (i.e., hedonic or egoistic) values are less likely to have pro-environmental beliefs and norms and to act pro-environmentally, while the opposite is mostly true for those who strongly endorse self-transcendence (i.e., altruistic or biospheric) values (e.g., Collins, Steg, & Koning, 2007; Kalof, Dietz, Stern, & Guagnano, 1999; Nordlund & Garvill, 2002, 2003; Schultz et al., 2005; Stern, 2000; Stern, Dietz, & Guagnano, 1998; Stern, Dietz, Kalof, & Guagnano, 1995; Thøgersen & Ölander, 2002).

As stated, we propose that the four values determine the chronic accessibility of the three goals as distinguished in goal framing theory, and hence affect the likelihood that a particular goal will be focal and steer attention, preferences and behaviour in a specific situation. The hedonic values affect the chronic accessibility of hedonic goals, egoistic values influence the chronic accessibility of gain goals, while altruistic and biospheric values affect the chronic accessibility of normative goals in a given situation.

Although generally individuals will endorse all four values to some extent, there may be substantial differences in the extent to which different individuals endorse specific values. Yet, importantly, on average, people across the world, both in developed as well as less developed countries, seem to strongly endorse biospheric values, and biospheric values are generally more strongly related to pro-environmental beliefs, attitudes, norms, and actions than the other three values (e.g., De Groot & Steg, 2007, 2008; Helbig, 2010; Hiratsuka, 2010; Nilsson et al., 2004; Steg et al., 2005; see Steg & De Groot, 2012, for a review). Hence, poorer populations endorse biospheric values and act upon them too (see also Dietz et al., 2005). This finding seems to be in contradiction with Inglehart's (1977) value revolution theory proposing that concern for the environment arises after basic materialistic values are fulfilled and when survival needs can be taken for granted, suggesting that biospheric values will particularly emerge, be endorsed, and influence beliefs, norms and behaviour when basic needs are fulfilled. The prevalence of biospheric values indicates that endorsement of biospheric values is not mainly a product of a post-materialist cultural shift, but also results from other sources, such as observing environmental degradation (cf. Brenchin & Kempton, 1994), or a strong reliance on environmental systems. In sum, people across the globe seem to value nature and the environment, and therefore develop and act upon biospheric values. As such, environmental considerations are part of people's morality, with both human and nature rights being protected by values (cf. Lindenberg & Steg, 2013b).

Value theories generally propose that values are stable dispositions, which structure and guide specific beliefs, norms and attitudes that in turn affect behaviour (Feather, 1995; Rokeach, 1973). Indeed, various studies showed that values mostly influence behaviour via behaviour-specific beliefs, attitudes, and norms (e.g., De Groot, Steg, & Dicke, 2008; Gärling et al., 2003; Jakovcevic & Steg, 2013; Kalof et al., 1999; Nilsson et al., 2004; Nordlund & Garvill, 2002, 2003; Poortinga, Steg, & Vlek, 2004; Steg et al., 2005; see also Dietz et al., 2005). Below, we review three theoretical explanations on the process through which values strengthen normative goals and promote pro-environmental behaviour. These explanations are not mutually exclusive, but highlight different aspects of the relationship between values and behaviour. First, values affect the importance and perceived likelihood of different consequences of behaviour, which affect how people evaluate various alternatives and which choices people make. Second, values affect pro-environmental behaviour via a process of norm activation. Third, values strengthen the environmental self-identity, which in turn affects pro-environmental behaviour. We will elaborate on these three processes below.

3.1.1. Values affect the importance and evaluation of consequences of behaviour

It has been argued that values that are prioritised by a person direct attention to value-congruent information, which in turn

affects beliefs and behaviour (Nordlund & Garvill, 2002, 2003; Stern & Dietz, 1994; Stern et al., 1995). As indicated above, we propose that values affect the strength of goals in a specific situation, which in turn affect the way a person perceives a situation: which information is salient, how important different aspects of choice options are to people, and how they evaluate different aspects of the situation so that some actions and potential outcomes are seen as attractive whereas other actions are seen as aversive (cf. Feather, 1995). To illustrate, in a given situation, normative goals are more likely to be strong and influential among individuals who strongly endorse biospheric values. As a result, these individuals are likely to focus on the normative (e.g., environmental) consequences of choices, and evaluate these consequences as particularly important. Indeed, a conjoint experiment revealed that when choosing between restaurants with different hedonic, egoistic, altruistic, and biospheric features, individuals with strong biospheric values particularly considered the biospheric aspects of the restaurants (i.e., whether organic food was served), while those who strongly endorse altruistic values particularly considered altruistic aspects (i.e., working conditions), and those with strong hedonic values mostly considered hedonic aspects (i.e., whether the food was tasty; Steg et al., 2014). In a similar vein, the stated importance of different consequences of nuclear and renewable energy sources appeared to depend on values: the stronger one's egoistic values, the more important respondents considered the egoistic consequences (e.g., prices, comfort) of these energy sources, while stronger biospheric values were associated with evaluating the environmental consequences (e.g., environmental quality, climate change, greenhouse gas emissions) as more important, irrespective of the type of energy use being evaluated (Perlaviciute & Steg, 2014). Also, individuals with strong biospheric values are more likely to be intrinsically motivated to engage in pro-environmental behaviour (i.e., they aim to benefit the environment), while the opposite was true for those with strong egoistic values, who were more likely to engage in pro-environmental behaviour because of extrinsic factors (De Groot & Steg, 2010). Likewise, people high in environmental concern seem to focus on environmental consequences, whereas those low in environmental concern especially seem to consider personal outcomes when making choices (Loukopoulos, Jakobsson, Gärling, Schneider, & Fujii, 2004). This outcome implies that people particularly consider aspects that have important implications for their most important values.

Values affect the strength of goals that in turn not only guide attention, but also affect how individuals evaluate the likelihood of different consequences of behavioural options. Interestingly, research suggests that people evaluate behavioural options in light of how these options will affect the values that are most important to them. For example, individuals who strongly endorse egoistic values were not only more likely to acknowledge the egoistic benefits of nuclear energy (such as affordable energy and energy security), but were more likely to acknowledge any benefit of nuclear energy, including its potential environmental benefits (De Groot, Steg, & Poortinga, 2013; Perlaviciute & Steg, 2014). Likewise, individuals who strongly endorse biospheric values appeared to downplay different possible negative egoistic aspects of renewable energy systems (such as energy prices, comfort), while those with strong egoistic values tended to downplay possible environmental benefits of renewable energy systems (Perlaviciute & Steg, 2014). These findings suggest that behavioural options that are believed to bear positively on factors that people strongly value also receive positive evaluations on beneficial aspects that are not closely linked to one's central values. In other words: people are tempted to stress any advantage and to downplay any disadvantage of behaviour options that have positive consequences for their important values, while the opposite is true for options that have negative consequences for their important values. As a consequence, they are more likely to have positive attitudes towards or choose options that have positive consequences for the values they strongly endorse (De Groot et al., 2013; Perlaviciute & Steg, 2014; Verplanken & Holland, 2002). Related to this finding, values seem to affect whether people act upon information aimed to increase awareness of the negative consequences of environmentally-harmful actions. An experimental study revealed that environmental campaigns might result in an increase in knowledge about the negative consequences of the targeted behaviour, irrespective of biospheric value strength. However, such campaigns appeared to increase pro-environmental intentions only among individuals who strongly endorse biospheric values, and not affect intentions of those with weak biospheric values (Bolderdijk, Gorsira, Keizer, & Steg, 2014). These findings imply that increases in environmental knowledge will gain motivational force only if people consider protecting the environment to be an important personal value.

In sum, values affect the strength of goals in a particular situation, thereby influencing the perceived importance of different consequences of behavioural options, as well as the perceived likelihood of these consequences. These outcomes in turn affect which option people prefer and which choices they make (e.g., De Groot et al., 2013; Verplanken & Holland, 2002).

3.1.2. Values activate personal norms

Second, it has been theorised that values influence behaviour by initiating a process of norm activation, and elicit feelings of moral obligation to act upon one's prominent values (Schwartz, 1977). Indeed, several studies suggest that values activate personal norms (e.g., De Groot, Steg, & Dicke, 2008; Jakovcevic & Steg, 2013; Nordlund & Garvill, 2002, 2003; Steg et al., 2005; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). In line with the value–belief–norm theory of environmentalism (VBN theory; Stern, 2000; Stern et al., 1999), it appeared that values affect the extent to which people are aware of the negative consequences of environmentally-harmful behaviour (i.e., problem awareness): the stronger one's biospheric values, the higher one's problem awareness, while strong egoistic values were associated with a lower problem awareness (e.g., De Groot et al., 2008; Nordlund & Garvill, 2002, 2003; Schultz et al., 2005; Steg et al., 2005; Stern et al., 1995). These relationships again demonstrate that values affect how individuals evaluate the consequences of environmental behaviour. Correlational as well as experimental studies showed that problem awareness in turn affects the extent to which people feel responsible for environmental problems and whether they think they can reduce environmental problems by engaging in pro-environmental actions (i.e., outcome efficacy): higher problem awareness is associated with stronger feelings of responsibility and higher outcome efficacy (De Groot & Steg, 2009; Gärling et al., 2003; Steg & De Groot, 2010; Steg et al., 2005). These factors in turn activate personal norms, that is, feelings of moral obligation to act pro-environmentally, which eventually affect behaviour. Acting in line with personal norms elicits positive moral emotions (e.g., feeling proud), whereas not acting upon personal norms results in negative emotions (e.g., guilt). Hence, values affect the strength of normative considerations (as reflected in personal norms) via problem awareness and outcome efficacy. Importantly, this process of norm activation triggered by values has been validated not only in European countries (e.g., De Groot et al., 2008; Nordlund & Garvill, 2002, 2003; Steg et al., 2005) and Northern America (Stern et al., 1999), but also in Latin America (Helbig, 2010; Jakovcevic & Steg, 2013), and Asia (Hiratsuka, 2010), suggesting that values affect pro-environmental behaviour in different cultures via a similar process of norm activation.

3.1.3. Values affect the environmental self-identity

Third, it has been proposed that values affect behaviour via environmental self-identity, that is, the extent to which we see ourselves as a pro-environmental person (e.g., Van der Werff, Steg, & Keizer, 2013a, 2013c; Whitmarsh & O'Neill, 2010). This proposition is in line with the finding that values more strongly influence behaviour when the self is activated (Verplanken & Holland, 2002; Verplanken, Trafimow, Khusid, Holland, & Steentjes, 2009). The more strongly individuals value the environment, the more likely they perceive themselves as a person who acts pro-environmentally, and the more likely they will act accordingly in a wide range of situations. Hence, identity mediates the relationship between values and behaviour (Van der Werff et al., 2013a, 2013c; Whitmarsh & O'Neill, 2010). This finding is not trivial because theoretically, individuals could strongly value nature and the environment, but not see themselves as a person who acts pro-environmentally, for example because they do not acknowledge environmental problems, or because they do not believe that these problems could or should be mitigated via individual actions (Van der Werff et al., 2013c).

Besides values, environmental self-identity appeared to be influenced by previous environmental actions: the environmental self-identity is stronger among those who did engage in pro-environmental actions, and weaker among those who did engage in environmentally-harmful actions (Van der Werff et al., 2013a). Interestingly, experimental studies showed that the environmental self-identity could be strengthened by reminding people of previous pro-environmental actions, especially when these previous actions clearly signal that one is a pro-environmental person (e.g., when the behaviour is unique or difficult), while it was weakened when people were reminded of previous environmentally-harmful actions (Cornelissen, Dewitte, Warlop, & Yzerbyt, 2007; Cornelissen, Warlop, & Dewitte, 2008; Van der Werff et al., 2013a, 2013b). However, in such cases values still predict the environmental self-identity, suggesting that environmental self-identity can be changed to some extent only. This implies that values are important in shaping one's environmental self-identity and thus for encouraging pro-environmental actions. Research further revealed that environmental self-identity affects behaviour by strengthening one's personal norms to act pro-environmentally (Van der Werff, Steg, & Keizer, 2013b). This finding again suggests that values strengthen the significance of normative considerations, in this case via the environmental self-identity.

3.2. Situational factors that weaken or strengthen normative considerations and value-congruent actions

From the above, we can conclude that most people tend to value nature and the environment, and are sometimes willing to act pro-environmentally even though this action may be costly. Despite this possibility, people do not always act pro-environmentally. We argue that people are more likely to act upon their biospheric values when these values are activated and supported by cues present in the situation in which choices are made (Lindenberg & Steg, 2013a; Maio, 2010; Verplanken & Holland, 2002). Hence, normative goals will be stronger and more likely to affect behaviour when (biospheric) values are strongly endorsed, and when these values are activated in a particular situation. Indeed, experimental studies showed that individuals were more likely to acquire information on the environmental consequences of choices and to choose options with a better environmental performance when they strongly endorsed biospheric values *and* when these biospheric values were activated in the situation, for example by priming these values or by enhancing participants' self-focus (Verplanken & Holland, 2002). Situational cues can thus remind us of what we find important in life, and affect the strength of different goals in a given situation related to these values (please note that this may happen without people being aware of this, as we explained earlier). This point implies that biospheric values are less likely to be translated into strong normative goals and to influence behaviour when these values are not supported by cues in the context in which decisions are made. An important question therefore is: Which situational factors affect (either positively or negatively) the likelihood that individuals act upon biospheric values and that normative considerations influence their actions? Below, we discuss briefly three relevant situational factors: signs of norm violating or norm-supporting behaviour of others, the costliness of pro-environmental actions, and competing goals that affect the likelihood that individuals prioritise biospheric values and normative goals.

3.2.1. Situational cues signalling that others violate or respect norms

First, signs of norm violating behaviours by others (e.g., littering) may reduce the strength of normative goals, thereby increasing the relative strength of hedonic and gain goals (Keizer, Lindenberg, & Steg, 2008). Signs of norm violations by others indicate that descriptive norms (perceptions of the behaviour shown by others in that situation) are in conflict with injunctive norms (the behaviour generally approved by others). The focus theory of normative conduct (Cialdini, Reno, & Kallgren, 1990) predicts that in such situations individuals will act upon the most salient norm. In situations with signs of norm violations of others, it is likely that descriptive norms are most salient. Indeed, field experiments showed that people were more likely to litter in a littered environment (Cialdini, 2003; Cialdini et al., 1990), but also in an environment where buildings were covered with graffiti, or unreturned shopping carts were present (Keizer et al., 2008). People were even more likely to steal in a littered environment (Keizer et al., 2008). These findings suggest that the influence of injunctive norms will not only be weakened by cues signalling disrespect by others for the very same norm, but also by cues signalling disrespect for other norms, suggesting that descriptive norms may even affect behaviour which is not directly related to that norm. This (cross-)norm inhibition effect appeared to increase when the observed norm transgressors increase in number (Cialdini et al., 1990), when the transgressors are more similar to the person observing the violation (Gino, Ayal, & Ariely, 2009), and when the status of the transgressors increases (Keizer, Lindenberg, & Steg, 2014). Ironically, research shows that an anti-litter sign placed in a littered setting increased instead of reduced littering, suggesting that a prohibition sign can make a conflicting descriptive norm more salient (Keizer, Lindenberg, & Steg, 2011). Hence, normative goals may be weakened by situational cues that signal that other people are not doing the right thing, which increases the likelihood that people will violate norms in general.

On the positive site, situational cues that signal that others respect norms (i.e., when descriptive norms reflect that many others act pro-environmentally) seem to increase the likelihood that a person conforms to norms. Hence, observing that others do the right thing may strengthen normative goals, and weaken the relative strength of hedonic and gain goals (Keizer, Lindenberg, & Steg, 2013). For example, field experiments showed that observing a person voluntarily removing other people's litter decreased the likelihood that the observer littered (Reno, Cialdini, & Kallgren, 1993), and, more generally, increased the likelihood that individuals help a person in need (Keizer et al., 2013). This outcome suggests that observing others respecting injunctive norms strengthens normative goals and increases the likelihood that people act upon other injunctive norms and their (biospheric)

values. Importantly, these actions are not a matter of copying the behaviour of role models; rather, norm support cues seem to promote pro-social (and pro-environmental) actions more generally (Keizer et al., 2013).

3.2.2. Behavioural cost

A second important factor that may weaken normative goals and reduce the likelihood that people act upon their biospheric values is the costliness of behaviour. As indicated in the start of this paper, some pro-environmental actions are associated with very high behavioural costs.[4] In such cases, acting upon biospheric values may seriously threaten the fulfilment of other values that are also important to individuals. For example, cycling rather than driving long distances benefits the environment (supporting biospheric values), but may be effortful and very time consuming (and thus threaten the fulfilment of hedonic and egoistic values). Research indeed reveals that biospheric values and normative considerations are less predictive of behaviours when these behaviours are too effortful, costly, or uncomfortable (Abrahamse & Steg, 2009, 2011; Bamberg & Schmidt, 2003; Diekmann & Preisendörfer, 2003; Harland, Staats, & Wilke, 1999; Lindenberg & Steg, 2007; Steg et al., 2011; Steg & Vlek, 2009). For example, normative considerations (as reflected in the norm activation model, i.e., personal norms, outcome efficacy, and awareness of consequences; Schwartz, 1977; Schwartz & Howard, 1981) appeared to be more predictive of short distance car trips (that are believed to be relatively easy to change) than of total car use (for which less feasible alternatives are available according to participants) in different European countries (Keizer, Steg, & Van Zomeren, 2014). Apparently, people are less likely to act upon normative considerations when the relevant behaviour is associated with relatively high costs (the low cost hypothesis, see Diekmann & Preisendörfer, 2003), as such actions are likely to seriously threaten other values they endorse. These relationships imply that, in such situations, normative goals are pushed to the background (and thus are relatively weak), while hedonic or gain goals become focal (and hence relatively more influential). Here, interventions reducing behavioural costs of pro-environmental actions may be called for that support or facilitate individuals to act upon their normative considerations. Yet, as we explained in Section 2, such interventions may run the risk of strengthening hedonic and gain goals. Therefore, it is important that such interventions are explicitly linked to normative goals (e.g., by stressing that the environmental benefits of the relevant actions). We come back to this issue in Section 4 and in the Discussion.

3.2.3. Situational factors affect the prioritisation of goals

Third, related to the previous point, in some circumstances people may wish or even need to balance different goals or prioritise one goal over other goals, for example when they have to manage multiple goals or have to cope with demanding situations. An experimental study in a driving simulator revealed that drivers who adopted a fuel saving goal appeared to save less fuel when they had to handle additional goals (i.e., being on time) as compared to the absence of time pressure. Also, drivers did not appear to consider their fuel consumption in demanding situations (such as when driving in heavy traffic or in complex traffic situations), probably because cognitive resources were overloaded, making them focus on the main tasks and neglect other goals (such as employing a fuel efficient driving style; Dogan, Steg, & Delhomme, 2011; see also Ünal, Platteel, Steg, & Epstude, 2012). Hence, situational factors can enhance the need to balance different goals, and result in prioritising hedonic or gain goals (such as safety or time saving), thereby inhibiting the effect of biospheric values and normative considerations on behaviour.

In sum, situational factors can weaken normative goals and thus inhibit the effects of normative considerations and biospheric values on behaviour as people wish or need to prioritise other values and goals. On the positive side, situational factors may also strengthen normative goals (and/or weaken hedonic and gain goals), making it more likely that people act upon biospheric values, and thus promote pro-environmental actions.

4. Hedonic and gain goals supporting normative goals

Above, we reasoned that environmental choices often imply a conflict between normative goals versus hedonic and gain goals. We described potential risks of mainly changing the (hedonic or gain) outcomes of behaviour, thereby targeting or strengthening hedonic and gain goals as to make pro-environmental behaviour also attractive when hedonic or gain goals are strong. Also, we discussed ways to target and strengthen normative goals, and showed that sometimes people do act pro-environmentally even though it may be somewhat costly to do so. Yet, research suggests that normative goals may be less predictive of behaviour when the costs are too high. Hence, in some situations targeting different goals separately may not be sufficient, as both approaches discussed above have their limitations. But what if we target multiple goals simultaneously? Can we identify circumstances under which hedonic or gain goals support rather than conflict with normative goals, and can doing so yield additional insights into how to encourage pro-environmental actions? Below, we discuss studies that suggest that pro-environmental actions can indeed support hedonic and gain goals next to normative goals.

De Young (2000) argued that people find some environmental behaviours as "worth engaging in because of the personal, internal contentment that engaging in these behaviors provides" (p. 515), suggesting that acting in line with environmental values and norms makes us feel good and thus supports hedonic goals (see also Carrus, Passafora, & Bonnes, 2008; Smith, Haugtvedt, & Petty, 1994). Indeed, correlational studies showed that people are more likely to engage in pro-environmental behaviour when they believe to derive pleasure and satisfaction from acting pro-environmentally (De Groot & Steg, 2010; Green-Demers, Pelletier, & Ménard, 1997; Koestner, Houlfort, Paquet, & Knight, 2001; Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998; Séguin, Pelletier, & Hunsley, 1999; Villacorta, Koestner, & Lekes, 2003), especially when the relevant behaviour is relatively difficult.

In addition, laboratory and field studies showed that people derive more pleasure and satisfaction from acting pro-environmentally and are more likely to comply with environmental appeals when pro-environmental behaviour is advertised as 'morally good' rather than 'economical'. Specifically, researchers found that people anticipated feeling better about complying with a normative (i.e., Do you care about the environment? Take a coupon for a free professional tyre check!) instead of a gain appeal (i.e., Do you care about your finances? Take a coupon for a free professional tyre check!), and, importantly, were also more likely to comply with a normative appeal than a gain appeal (Bolderdijk, Lehman, et al., 2012; Bolderdijk, Steg, et al., 2012). This outcome was particularly likely when the self was activated, which suggests that normative appeals motivate behaviour because acting upon such appeals makes us feel good and enable us to maintain or

[4] As indicated in Section 2, behavioural costs are defined by various contextual and societal factors, including technological, economic, physical, institutional and cultural factors (see Abrahamse, Steg, Vlek, & Rothengatter, 2005; Gatersleben & Vlek, 1998; Gifford, 2008).

enhance a positive self-concept.[5] Hence, acting upon normative appeals can make us see ourselves as a morally right person, which can elicit positive feelings (see also Andreoni, 1990; Aronson, 1969). This outcome again suggests that acting pro-environmentally may not only fulfil normative goals because it is the right thing to do, but also hedonic goals, as doing the right thing makes people feel good about themselves.

People may also act upon normative considerations and engage in pro-environmental actions to enhance their status, which means that pro-environmental actions support gain goals. For example, people were more likely to choose pro-environmental products (rather than more luxurious non-green products) when their status motivations were activated. This outcome was particularly true when the pro-environmental option was slightly more (rather than less) expensive, and when choices were made in public rather than in a private setting (Griskevicius, Tyber, & Van den Bergh, 2010). This finding suggests that people may be more inclined to act pro-environmentally if they believe that this will enhance their status by showing others they have sufficient resources to make altruistic sacrifices. Consequently, pro-environmental choices can be promoted by strengthening the status value of the relevant products. Similarly, research suggests that people are more likely to adopt sustainable innovations when they believe that these innovations would benefit the environment and allows them to enhance their status, while instrumental costs and benefits did not significantly predict the likelihood of adopting sustainable innovations (Noppers, Keizer, Bolderdijk, & Steg, 2014). This was true for both products (i.e., electric cars) and services (i.e., locally produced renewable energy). These examples suggest that acting pro-environmental can serve both normative and gain goals.

The findings reported above indicate that gain and hedonic goals may support normative goals: acting pro-environmentally can enhance one's status and make people feel good. Hence, making personal sacrifices to benefit the environment can sometimes actually make people feel better, rather than worse (see also Venhoeven, Bolderdijk, & Steg, 2013). Importantly, the picture that is emerging here is that pro-environmental behaviour may fulfil normative, as well as gain or hedonic goals, suggesting that normative goals may not always conflict with hedonic and gain goals. Rather, positive hedonic and gain consequences may occur because one engages in pro-environmental actions. Based on this implication, we speculate that interventions may be effective when they target hedonic and gain goals as far as they support normative goals, thereby clearly linking hedonic and gain goals to normative goals, as explained in the examples above. Doing so may prevent the pitfalls that occur when exclusively targeting and strengthening hedonic and gain goals, thereby neglecting normative goals, as discussed in Section 2. Future research is needed to test whether and under which circumstances such approaches may indeed be effective.

5. Discussion

In this paper, we presented an integrated theoretical framework for encouraging pro-environmental behaviour, the IFEP, comprising a limited number of key variables (values, situational cues, and goals) as well as key processes through which effective behaviour change may take place. We propose that behaviour is influenced by three different goals (hedonic, gain, and normative goals, respectively) that steer attention and influence which information people detect, what knowledge is most accessible, what action alternatives are perceived, and how they will act. In many cases, people may not be aware of which goals steer their perceptions, evaluations and behaviour, as goal-directed behaviour is not necessarily intentional, requiring motivational effort. The strength of the three goals depends on the extent to which people endorse different values (that define the chronic accessibility of the three goals), as well as on situational cues that activate or deactivate particular values (often without people being aware of this). Next, we reviewed research on factors influencing effective behaviour change, following the IFEP. We indicated that pro-environmental choices often imply that people need to sacrifice personal benefits (such as time, money, pleasure, or convenience) to benefit the environment. From this observation, we identified two basic ways to encourage pro-environmental behaviour. First, the actual or perceived outcomes of environmental behaviour can be changed, which will reduce or even remove the conflict between normative goals, on the one hand, and hedonic and gain goals, on the other. Second, normative goals can be strengthened (which will weaken the relative strength of hedonic and gain goals), which will make the conflict between normative and the other two goals less prominent. This approach will make people focus on the environmental consequences (and reduce the value that they attach to hedonic and gain consequences) of behavioural options and encourage pro-environmental actions, even though such actions may have some personal costs.

Although the first route may be needed when pro-environmental choices are very costly (e.g., in terms of costs, inconvenience, or effort), it may not result in sustained pro-environmental actions. Notably, interventions solely targeting hedonic and gain goals by changing the (perceived) costs and benefits of behaviour (e.g., via economic, legal, physical instruments or changes, or information provision) are likely to strengthen these goals and thereby push normative goals to the background. As a consequence, decisions will be primarily based on hedonic and gain considerations, in which case people are likely to act only pro-environmentally as long as it is pleasurable or profitable to do so, and cease to engage in pro-environmental behaviours when doing so is more effortful, inconvenient, and financially unattractive. Also, it is possible that people with strong hedonic and gain goals mainly want to appear moral while avoiding the costs of actually being moral. Hence, they may engage in easy pro-environmental actions or express good intentions, but fail to engage in more costly pro-environmental actions that are needed to substantially increase environmental quality. This possibility implies that the second strategy, strengthening normative goals, is required as well.

Next, we elaborated on ways to strengthen normative goals. Our basic proposition was that the strength of normative goals depends on values and situational cues that influence the accessibility of these values. First, values influence the chronic accessibility of goals and increase the likelihood that normative considerations affect behaviour. Research suggests that biospheric values, in particular, influence pro-environmental choices. Notably, (biospheric) values influence which consequences people consider when making choices, and how they evaluate different consequences of behaviour. People who strongly endorse biospheric values find environmental consequences of options more important, and evaluate options that benefit the environment generally more positively in many respects. Furthermore, studies showed that biospheric values influence pro-environmental choices via a process of norm activation and by strengthening the environmental self-identity. Future research should study these processes in more depth, and examine whether values may affect pro-environmental behaviour via other processes as well.

Second, we argued that biospheric values particularly affect behaviour when they are activated and supported by situational

[5] This is in line with a study by Verplanken and Holland (2002), who found that eliciting a self-focus activates central values, which promotes value-congruent actions.

cues, resulting in stronger normative goals. For example, normative goals are likely to be weaker when there are clear signs of norm violating behaviour of others (rather than cues signalling that others respect norms), and when important competing goals are present or strengthened (e.g., when behavioural costs are high, or when people have to balance multiple goals in demanding situations). However, importantly, biospheric values may provide a buffer against situational cues that weaken normative goals; that is, we propose that strong biospheric values imply that normative goals are chronically activated, and are less easily pushed to the background in the presence of situational cues that increase the relative strength of hedonic and gain goals. That is, even though situational cues may weaken the strength of normative goals, normative goals may still be focal and steer decision making among those with strong biospheric values. Future research should test this proposition. Moreover, future research should study other relevant situational cues that may affect the strength of normative goals, in addition to the three factors discussed in the present paper.

Finally, we argued that hedonic and gain goals may in some cases support rather than conflict with normative goals. That is, acting pro-environmentally may not only be the right thing to do, but such actions can also make people feel good, and enhance their status. This possibility suggests that targeting multiple goals simultaneously can be a promising way to promote pro-environmental choices, with normative goals being supported, not inhibited, by hedonic and gain goals. Future research is needed to test whether and under which conditions such approaches can indeed be successful, and to study to what extent effects differ depending on whether such interventions would primarily target normative goals versus hedonic or gain goals. For example, should we stress that cost savings happen to go along with environmental benefits, or would it be more effective to stress that people would benefit the environment and as a side effect also save money?

The IFEP extends current theorising on pro-environmental behaviour change in three important ways. First, the IFEP integrates many different theoretical approaches in the field of pro-environmental behaviour research that typically focus on a limited set of relevant variables and processes, as we showed in this review. In fact, the IFEP defines the conditions under which prominent theories in environmental behaviour research will probably be most predictive. For example, the IFEP suggests that the norm activation model (that focuses on normative considerations) is probably more predictive of behaviour when normative goals are focal, while the theory of planned behaviour (that focuses on individual cost–benefit analyses; Ajzen, 1991) is likely to be particularly relevant when gain goals are focal, and theories on affect are likely to be more predictive of behaviour when hedonic goals are dominant (cf. Lindenberg & Steg, 2007). Related to this, behavioural interventions are probably more effective if they take into account which goals are dominant in a given situation. That is, interventions aimed to make pro-environmental more pleasurable are probably more effective when hedonic goals are focal, while communicating which behaviours people could adopt to reduce their environmental impact is likely to be particularly effective when normative goals are focal.

Second, as explained above, the IFEP suggests that changing the perceived costs and benefits of different behavioural options is not the only way to encourage pro-environmental behaviour. In addition, interventions could aim to change the relative strength of different goals. The latter possibility has not been considered explicitly in environmental behaviour change research yet, to our knowledge. Our reasoning challenges some existing beliefs about effective behaviour change. As explained above, mainly reducing the behavioural costs or increasing the benefits of pro-environmental behaviour (or increasing the costs or reducing the benefits of environmentally-harmful behaviour) may have unwanted effects and inhibit rather than promote sustained pro-environmental actions. We proposed that strengthening normative goals is an important and novel additional strategy to encourage pro-environmental behaviour. This strategy will make individuals focus on the normative (including the environmental) consequences of behavioural options, thereby reducing the prevalence of the conflict between hedonic and gain goals, on the one hand, and normative goals, on the other, which can encourage pro-environmental actions. Acting pro-environmentally can even support hedonic and gain goals, as far as such actions make people feel good about themselves and enhance their status. Hence, rather than mainly trying to change particular factors that reflect the costs and benefits of behaviour (which may change attitudes, norms, awareness of consequences, among others), it is important to consider effective ways to change the strength of different goals that define which (motivational) factors play a key role in the first place as well. In this respect, it seems particularly important to study how values (in particular biospheric values) can be strengthened, and to understand how different situational cues activate or deactivate these values, as these determine the strength of different goals in a given situation.

Third, in contrast to common theorising, situational factors play a prominent role in the theoretical framework we proposed. We proposed that cues in the situation may activate or deactivate particular values, and thus strongly affect which goals are dominant in a given situation. Although several scholars have emphasised that situational factors can influence environmental behaviour in important ways (Geller, 1995; Guagnano, Stern, & Dietz, 1995; Ölander & Thøgersen, 1995; Steg & Vlek, 2009; Stern, 2000), situational factors have not been explicitly considered in prominent theories on pro-environmental behaviour change yet (cf. Steg & Vlek, 2009). The IFEP indicates how situational factors may affect pro-environmental behaviour change, vis-à-vis relevant motivational factors.

The empirical evidence we provided to substantiate our theoretical reasoning was sometimes correlational, sometimes experimental, and sometimes based on both correlational and experimental studies. Whereas correlational studies are generally high in external validity (provided that adequate samples and measures have been employed), experimental studies are high in internal validity and enable us to draw causal interferences. Ideally, multiple research designs are employed to secure internal and external validity of findings, to cross-validate findings, and results should be replicated in different studies. Indeed, some of the issues we discussed were supported in one or a few studies only, so there is a need for the additional cross-validation of such findings. Related to this, it is important to rely not only self-reports of importance of different motivations, because research suggests that people may not be aware of their true motivations, or provide socially desirable answers (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008; Noppers et al., 2014, Steg, Vlek, & Slotegraaf, 2001). This consideration implies that next to direct measures of the strength of different goals or motivations, the extent to which these different goals or motivations actually predict (and hence motivate) choices should be studied (see Nolan et al., 2008; Noppers et al., 2014).

Our reasoning also has important implications for environmental policies. We demonstrated that normative considerations are an important predictor of pro-environmental behaviour. It seems that the normative route for encouraging pro-environmental action is undervalued. People seem to engage voluntarily in many pro-environmental actions, even though such actions can be somewhat more costly, and doing so may actually make them feel

good and enhance their status. Our review also suggests that it is important to make sure that situational cues activate and support biospheric values so that normative goals are strengthened, for example by highlighting that others follow pro-environmental norms and by facilitating pro-environmental choices. Thus, residents could be motivated to adopt insulation by communicating that many of their neighbours already insulated their attic because they value the environment. In this respect, it is important to stress not only the positive hedonic and gain consequences of choices (as this is likely to result in strengthening and prioritising these goals), but to link these benefits to normative considerations, as to promote sustained pro-environmental actions. Hence, when increasing the attractiveness of pro-environmental behaviours, it should still be emphasised that such actions benefit the environment and support normative goals.

Throughout the paper, we identified various important topics for future research. Here we recapitulate the most important questions. Most importantly, first, given the key role of biospheric values, it is important to study how values develop and can be strengthened. Although values are believed to be relatively stable across time, the relative importance of values may be changed, for example due to new experiences in life (e.g., Brenchin & Kempton, 1994; Hansen & Postmes, 2014; Lönnqvist, Jasinskaja-Lahti, & Verkasalo, 2011). Until now, most research in environmental psychology focused on which values affect beliefs, norms, and behaviour, and how they affect them, while little is known about the conditions under which values are likely to change. Second, we should get a better understanding of how situational factors, vis-à-vis individual factors, affect pro-environmental behaviour. Third, future research should reveal whether values indeed provide a buffer against unfavourable contexts that weaken normative goals, as we suggested above. Fourth, it is important to study whether pro-environmental behaviour can be promoted by targeting multiple goals, and examine how hedonic and gain goals can support, rather than primary weaken normative goals. Which interventions can be effective in realising this, and under which conditions will these interventions be most effective? Fifth, it is important to study the general applicability of our reasoning across behaviours, contexts and cultures. As yet, the vast majority of environmental studies is conducted in Western industrialised societies (with some notable exceptions, e.g., Corral-Verdugo, 1997; Jakovcevic & Steg, 2013; Mosler & Kraemer-Palacios, 2012; Schultz et al., 2005; Schultz & Zelezny, 1999; Urbina-Soria & Moyano-Diaz, 2012). Obviously, environmental problems are global problems. We need to get a better understanding of the extent to which research findings can be generalised to different cultures and societies, and to what extent cultural differences should be considered when designing and implementing environmental policies.

We presented a novel theoretical framework to understand pro-environmental behaviour change that allows a more comprehensive and detailed study of the variables and processes that play a role in effective behaviour change. We proposed that next to changing the outcomes of behaviour, pro-environmental behaviour can also be promoted by strengthening normative goals that make people focus on the environmental consequences of their actions. Indeed, the findings reviewed above indicate that normative considerations are predictive of pro-environmental beliefs, norms and actions, and that people are likely to engage in pro-environmental actions even though this may be costly or effortful. Moreover, acting pro-environmentally may sometimes even support (rather than threaten) hedonic and gain goals. Together, these observations imply that normative or pro-environmental considerations are more significant for pro-environmental actions than often assumed, and that normative and moral approaches may be a promising way to promote pro-environmental actions.

Acknowledgements

We thank three anonymous reviewers and the review editor, Harry Heft, for their valuable suggestions.

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