

Eco-friendly travelling

The relevance of perceived norms and social comparison

Rouven Doran



Dissertation for the degree of philosophiae doctor (PhD)
at the University of Bergen

2016

Dissertation date: December 12th 2016

© Copyright Rouven Doran

The material in this publication is protected by copyright law.

Year: 2016

Title: Eco-friendly travelling

The relevance of perceived norms and social comparison

Author: Rouven Doran

Print: AiT Bjerch AS / University of Bergen

Scientific environment

This project was completed in the Department of Psychosocial Science, Faculty of Psychology, University of Bergen, Bergen, Norway. Doctoral training was provided by the Graduate School of Human Interaction and Growth (GHIG). For the duration of the project, the doctoral candidate was a member of the Research Group for Social Cognitive Studies in Tourism (SciTour).

The main supervisor was Svein Larsen, professor in the Department of Psychosocial Science, University of Bergen, and the co-supervisor was Torvald Øgaard, professor at the Norwegian School of Hotel Management, University of Stavanger. The project was supported by funding from the University of Bergen and the Meltzer Foundation.

Acknowledgements

There are some people who deserve to be mentioned at this point:

Each and every one of the more than 4,000 participants who contributed to the research, either by filling out a questionnaire while on vacation or by taking the time to answer the questions online.

My two supervisors, Svein Larsen and Torvald Øgaard, whose scholarly advice I value greatly, and who shared much-needed insights on native customs. Katharina Wolff deserves mentioning in the same regard.

Wibecke Brun†, who kindly invited me to become a research assistant in the research group, as this inspired me to pursue a doctoral degree later on.

Colleagues in the department and the graduate school for inspiring discussions of private and academic nature, Matiss Macs for helping with the programming, and Jane Zagorski for proofreading the manuscript.

Football and music festival companions who shared travel experiences of the more adventurous kind, and Ultimate Rainfall for helping me deal with the dark (and rainy) winter months.

Leon, Florian, and Bettina without whom my psychology studies would not have been such a great time, as well as Marcel and Daniel for being great colleagues and friends who introduced me to the concept of living in Bergen as a German.

My parents Gundula and Ronald, as well as my siblings Tjark, Claire, Philine, and Callum for making me feel that I always had a safe haven to return to.

Finally, of foremost importance, Ine, who was the reason I moved to Norway in the first place and who supported me at all times.

Abstract

Tourism can be linked to negative environmental impacts, such as an extensive output of greenhouse gas emissions. But in spite of the increase in public awareness of (as well as positive attitudes towards) the need to reduce such impacts, few people seem willing to adjust their travel accordingly. Moreover, even those who are strongly committed to environmental practices at home are less likely to engage in the respective behaviour while on vacation. The overarching aim of this project was to explore the relevance of perceived norms and social comparison with respect to travel choices that benefit the environment.

Paper I explored perceived differences between people's personal attitudes and a normative standard and whether perceptions of personal attitudes about environmental issues in tourism differ from what is desirable. Results from two studies indicated tendencies among the participants to view their personal attitudes more positively than those of others (measured in terms of attitude judgements of a typical tourist, an average tourist, or tourists generally). Personal attitudes were judged to be congruent with perceptions of what the participants considered desirable.

Paper II investigated associations between perceived norm strength and intentions to choose eco-friendly travel options. Results from one study showed that personal norms showed the strongest association with behavioural intentions and that the associations between social norms (injunctive and descriptive) and behavioural intentions were reduced when personal norms were also controlled for. Further analysis provided support for the view that the association between injunctive social norms and behavioural intentions could partly be explained by personal norms. Descriptive social norms remained associated with behavioural intentions even after personal norms were controlled for.

Paper III explored social comparison feedback (here: information about one's own ecological footprint and that of an average reference group member) in relation to indicators of eco-friendly travel choices, namely behavioural intentions and perceived

efficacy. One study demonstrated that exposure to unfavourable feedback (i.e., a personal ecological footprint that is relatively worse than that of others) can affect behavioural intentions when in-group identification with the reference group is high: Participants exposed to unfavourable feedback showed stronger intentions to choose eco-friendly travel options than those exposed to non-discrepant feedback when they expressed high, but not moderate or low, levels of in-group identification. Another study failed to replicate these findings and furthermore found no effect of exposure to favourable feedback (i.e., a personal ecological footprint that is relatively better than that of others), with similar findings reported for participants who varied in their level of in-group identification. None of the studies reported effects of social comparison feedback on perceptions of self- and collective efficacy.

The overall findings indicate that perceived norms and social comparison could be relevant for travel choices with environmental implications. From a theoretical point of view, the project expands the canon of literature exploring psychosocial factors associated with choices of eco-friendly travel options. It highlights the predictive utility of social and personal norms for explaining individual travel decisions, emphasising the importance of the moral obligations that a person feels towards the behaviour in question. From a practical point of view, the project provides insights into how to improve interventions that are targeted at encouraging travel choices that benefit the environment and about how social comparison might help individual tourists justify their attitude-behaviour inconsistencies. The summary concludes with a discussion of current “blind spots” in the literature, followed by suggestions for future investigations.

List of publications

- Doran, R., & Larsen, S. (2014). Are we all environmental tourists now? The role of biases in social comparison across and within tourists, and their implications. *Journal of Sustainable Tourism*, 22, 1023–1036. doi: 10.1080/09669582.2013.836209
- Doran, R., & Larsen, S. (2016). The relative importance of social and personal norms in explaining intentions to choose eco-friendly travel options. *International Journal of Tourism Research*, 18, 159-166. doi: 10.1002/jtr.2042
- Doran, R., Hanss, D., & Øgaard, T. (2016). *Can social comparison feedback affect indicators of eco-friendly travel choices? Insights from two online experiments*. Manuscript submitted for publication.

Contents

Scientific environment	3
Acknowledgements	4
Abstract	5
List of publications	7
Contents	8
1. Introduction	10
2. Background	12
2.1 PRIOR RESEARCH ON SUSTAINABLE TOURISM BEHAVIOUR	12
2.2 SOCIAL DILEMMA PERSPECTIVE ON ECO-FRIENDLY TRAVELLING	15
2.2.1 <i>Perceived uncertainty in social dilemmas</i>	16
2.2.2 <i>Perceived efficacy in social dilemmas</i>	17
3. Theoretical and empirical foundations	19
3.1 PERCEIVED NORMS	19
3.1.1 <i>Social norms</i>	19
3.1.2 <i>Personal norms</i>	21
3.2 SOCIAL COMPARISON	23
3.2.1 <i>Social comparison biases</i>	24
3.2.2 <i>Social comparison feedback</i>	25
3.3 SUMMARY OF RESEARCH AIMS	29
4. Method	31
4.1 PAPER I	31
4.1.1 <i>Participants</i>	32
4.1.2 <i>Materials and procedure</i>	32
4.1.3 <i>Data analyses</i>	34

4.2	PAPER II.....	35
4.2.1	<i>Participants.....</i>	35
4.2.2	<i>Materials and procedure.....</i>	36
4.2.3	<i>Data analyses.....</i>	37
4.3	PAPER III.....	38
4.3.1	<i>Participants.....</i>	38
4.3.2	<i>Materials and procedure.....</i>	39
4.3.3	<i>Data analyses.....</i>	44
5.	Results	45
5.1	PAPER I.....	45
5.2	PAPER II.....	46
5.3	PAPER III.....	47
6.	Discussion	48
6.1	MAIN FINDINGS.....	48
6.1.1	<i>The relevance of perceived norms.....</i>	48
6.1.2	<i>The relevance of social comparison biases.....</i>	51
6.1.3	<i>The relevance of social comparison feedback.....</i>	53
6.2	METHODOLOGICAL CONSIDERATIONS.....	57
6.3	IMPLICATIONS.....	59
6.3.1	<i>Theoretical implications</i>	59
6.3.2	<i>Practical implications.....</i>	61
6.4	ETHICAL CONSIDERATIONS.....	64
6.5	CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH.....	65
	References.....	68

1. Introduction

Addressing the issue of environmental sustainability is one of the key societal challenges of the present century (Vlek & Steg, 2007). This realisation is particularly fuelled by the notion that anthropogenic greenhouse gas emissions, for instance, carbon dioxide (CO₂), play an important role in driving global climate change (IPCC, 2014). Because many environmental problems can be linked to human behaviour, changing relevant behaviours can help remedy these problems (Steg & Vlek, 2009). Consequently, researchers have devoted increasing attention to the study of psychosocial factors that may encourage people to behave in ways that are meant to serve this aim (see Gifford, 2011).

Tourism can be linked to a variety of problematic environmental impacts. Not only are there possible impacts at the local level such as losses in biological diversity (UNEP-UNWTO, 2012), but there are also impacts at the global level that touch upon the issues of energy use and emissions, water use, land use, and food consumption (Gössling & Peeters, 2015). It is estimated that the tourism sector accounts for about 5% of global CO₂ emissions (UNWTO-UNEP, 2008) and that most of these emissions result from demand-driven sectors like accommodation and transportation (Peeters & Dubois, 2010). In fact, transportation from and to destinations accounts for around 75% of the CO₂ output of the tourism sector (UNWTO-UNEP, 2008). Moreover, when considering the current and predicted growth of the sector, it can be expected that the amount of tourism-related greenhouse gas emissions will continue to increase in the future (Gössling & Peeters, 2015; Peeters & Dubois, 2010).

It has become increasingly evident that social and behavioural change is needed if the tourism sector is to move away from its present unsustainable pathway (Gössling, Hall, Peeters, & Scott, 2010). These changes are needed because developments in technology so far have not been (and cannot be expected to be) able to make up for the continuous growth of the sector (Gössling et al., 2010; Peeters & Dubois, 2010). It has been well-documented, for instance, that technological advancements are

unlikely to result in significant reductions in tourism-related CO₂ emissions unless they are accompanied by changes in travel mode and destination choice (Peeters & Dubois, 2010). Possible changes can take different forms such as travelling less frequently, staying longer at destinations, avoiding unnecessary air travel, favouring airlines and tour operators with environmentally sound management, participating in voluntary carbon offsetting schemes, or choosing certified destinations and accommodation (Simpson, Gössling, Scott, Hall, & Gladin, 2008). Thus, behavioural change is often considered to be a key factor with regard to reducing negative environmental impacts that stem from the tourism sector (e.g., Budeanu, 2007; Hall, 2013; G. Miller, Rathouse, Scarles, Holmes, & Tribe, 2010), with an emphasis on limiting contributions to global climate change through an extensive (and still growing) output of CO₂ emissions (e.g., Barr, Shaw, Coles, & Prillwitz, 2010; Barr, Shaw, & Coles, 2011; Gössling et al., 2010; Hares, Dickinson, & Wilkes, 2010; McKercher, Prideaux, Cheung, & Law, 2010; Peeters & Dubois, 2010).

The present project was aimed at enhancing the current state of knowledge about psychosocial factors that can possibly influence travel choices in favour of eco-friendly travel options.¹ That sort of knowledge can have practical value as it “provides practitioners with a solid theoretical foundation for developing social marketing campaigns aiming to promote behavioural change in domains such as mobility, home energy use, and nutrition” (Bamberg, Rees, & Seebauer, 2015, p. 155). The focus of the present project was on exploring the roles of perceived norms and social comparison and their possible associations with indicators of eco-friendly travel choices. In doing so, the project echoes recent calls in the literature for an investigation of how individual travel decisions are influenced by social context (e.g., Barr & Prillwitz, 2014; Barr et al., 2010).

¹ Eco-friendly travel options, as understood in this project, are behavioural options that aim to limit the negative impacts of tourism on the natural environment. It can be viewed as a form of pro-environmental behaviour, which, according to Steg, Bolderdijk, Keizer, and Perlaviciute (2014), is “any action that enhances the quality of the environment, either resulting or not resulting from pro-environmental intent” (p. 104).

2. Background

The United Nations World Tourism Organization (UNWTO; 1995) defines tourism as “activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes” (p. 1). This definition encompasses different tourism activities, which can broadly be categorised into accommodation, transportation, and other activities. Making this categorisation is common practice in policy reports addressing the environmental impacts of the tourism sector (e.g., UNEP-UNWTO, 2012; UNWTO-UNEP, 2008) as well as in scholarly debates surrounding the issue of sustainable tourism (e.g., Gössling et al., 2010; Peeters & Dubois, 2010). This chapter begins by positioning the project in past research on the wider subject and furthermore argues for a social dilemma perspective on eco-friendly travelling.²

2.1 Prior research on sustainable tourism behaviour

Several studies (Barr et al., 2010, 2011; Cohen, Higham, & Reis, 2013; Higham, Reis, & Cohen, 2016; Mehmetoglu, 2010; D. Miller, Merrilees, & Coghlan, 2014) have taken on the task of exploring people’s behavioural patterns at home and on vacation. For instance, Miao and Wei (2013) looked at the frequency with which people engage in various pro-environmental behaviours across these two contexts (e.g., waste recycling, energy saving). They found that people carried out the same behaviours less frequently while staying at hotels than in everyday life, and also, that their motivational underpinnings differed somewhat. Whereas normative motives turned out to be the strongest indicator of pro-environmental behaviour in a

² The term sustainable tourism refers to “tourism that takes full account of current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (UNEP-UNWTO, 2012, p. 1). For a more general discussion of the sustainability concept (including its three dimensions: environmental, social, and economic) as well as its application to tourism studies, see Hall, Gössling, and Scott (2015). This project focusses on the issue of environmental sustainability.

household setting (e.g., moral convictions), hedonic motives were the strongest indicator in a hotel setting (e.g., personal comfort). Similar findings were reported by Dolnicar and Grün (2009) who studied environmentally friendly behaviour across individuals but also across contexts. Despite the fact that they found heterogeneity in individual behaviour, the vast majority of their participants decreased their respective environmental engagement while on vacation. In fact, only 15% of their participants appeared to convert their patterns of behaviour from everyday life into tourism settings. These findings match those from recent studies on discretionary air travel (Barr et al., 2010; Cohen et al., 2013).

It is reasonable to question whether the approach of informing people about the environmental impacts of their travelling is good enough to motivate behavioural change. These doubts are reflected in the disconnect between an increasing public awareness of the negative environmental impacts associated with contemporary tourism (such as CO₂ emissions) and a continuing reluctance to support mitigating behaviours at the individual level (Cohen & Higham, 2011; Hares et al., 2010; Higham & Cohen, 2011; G. Miller et al., 2010). In fact, sometimes those with the greatest awareness are the least willing to forgo personal benefits by adjusting their travel behaviour (McKercher et al., 2010). Research further indicates that this unwillingness to adjust current travel behaviour prevails even though more and more people see the value of considering environmental issues when travelling. This can be described as an attitude-behaviour gap (Hibbert, Dickinson, Gössling, & Curtin, 2013; Juvan & Dolnicar, 2014b). Such a gap has been demonstrated in studies of people from different national backgrounds (Cohen et al., 2013; Higham, Cohen, Cavaliere, Reis, & Finkler, 2016; Higham, Cohen, & Cavaliere, 2014) as well as for people with varying degrees of environmental commitment as part of their everyday lives (Barr et al., 2011, 2010).

Past research has identified various explanations that people use to justify their travel behaviour when confronted with the aforementioned gap (Juvan & Dolnicar, 2014b; Juvan, Ring, Leisch, & Dolnicar, 2016). As described by Juvan and Dolnicar (2014b), these can be categorised into denial of consequences, downward comparison, denial

of responsibility, denial of control, exception handling, and compensation through benefits. Other studies have looked at sustainable tourism behaviour or its antecedents in relation to sociodemographics (Hedlund, Marell, & Gärling, 2012; Kroesen, 2013; Mehmetoglu, 2010), infrastructure availability (Dolnicar & Grün, 2009; D. Miller et al., 2014), travel experiences (Chiu, Lee, & Chen, 2014), travel motivation (Luo & Deng, 2007), environmental knowledge (A. Chen & Peng, 2012), emotional states (Araña & León, 2016), and travel habits (Barr et al., 2010; Hares et al., 2010). Other research has linked individual willingness to choose sustainable tourism alternatives to a variety of other factors, including moral convictions, time concerns, personal values, perceived efficacy, environmental concern, affinity towards diversity, and personality traits (Dolnicar & Leisch, 2008; Dolnicar, 2010; Doran, Hanss, & Larsen, 2015, 2016; Hedlund et al., 2012; Hedlund, 2011; Mehmetoglu, 2010; Passafaro et al., 2015).

Recent developments in the literature have called for more research to address how individual travel decisions are shaped by social contexts, particularly with respect to sustainable tourism behaviour (e.g., Barr & Prillwitz, 2014; Barr et al., 2011, 2010; G. Miller et al., 2010). A shared position in this literature is that tourism activities cannot be considered in isolation from the social context in which they take place, and that taking these contexts into account benefits the understanding of how to motivate behavioural change at the individual level. Perhaps as a response to these calls, an increasing number of studies have explored how the social context might influence individual travel decisions, for instance, through social identities, social norms, social meanings, and social networks (Cohen et al., 2013; Hibbert et al., 2013; Luzecka, 2016). The present project complements and adds to recent research that has explored the role of psychosocial factors in explaining individual willingness to purchase tourism alternatives that have lower negative environmental impacts but higher personal costs (Doran, et al., 2015, 2016; Hedlund et al., 2012; Hedlund, 2011; Rahman & Reynolds, 2016).

2.2 Social dilemma perspective on eco-friendly travelling

Many societal problems are examples of real-world social dilemmas in which a person's own behavioural choices affect the well-being of others and vice versa (Van Lange & Joireman, 2008; see also Von Borgstede, Johansson, & Nilsson, 2013). These situations share the same basic logic in that people are given a choice between behavioural options that serve personal interests (but neglect collective interests) and behavioural options that serve collective interests (but neglect personal interests). Whereas there is typically a clear incentive for choosing the former, collective interests can be served optimally only when people refrain from pursuing their personal interests. Social dilemmas are thus broadly defined as situations in which each individual group member has a clear incentive to pursue personal interests even though this course of action (if taken by all group members) results in a less-than-optimal group outcome (Dawes & Messick, 2000).

For the issue of environmental sustainability, people can encounter a similar situation when the personal benefits of maintaining one's present (unsustainable) behaviour overshadow the anticipated benefits of adopting alternative (sustainable) behaviour. The dilemma boils down to the idea that if a large count of individuals refuse to subordinate their personal interests to collective interests for the sake of the environment, all members of society would suffer under the conditions resulting from this (cf. Von Borgstede et al., 2013). In other words, there are circumstances in which individual rationality results in collective irrationality (Kollock, 1998). Practical examples of this include electricity consumption (Wiener & Doescher, 1994), commuting decisions (Garvill, 1999), or purchases of eco-friendly product alternatives (Gupta & Ogden, 2009).

Several scholars have argued for the idea that conflicts between personal and collective interests may also be present in the tourism domain (Anable, Lane, & Kelay, 2006; Becken, 2004; Dolnicar, Crouch, & Long, 2008; Doran et al., 2015, 2016; Higham et al., 2014; Hindley & Font, 2014). This project departs from the position that the immediate outcomes of choosing an eco-friendly travel option often

remain associated with personal sacrifices (e.g., more expensive or more time consuming than conventional alternatives), whereas the negative outcomes of not doing so are anticipated in the more distant future (e.g., climate change impacts). Likewise, people can instantly enjoy the personal benefits of focussing on what is most convenient from an individual perspective (e.g., saving money), whereas the collective benefits of taking environmental issues into account when travelling are again delayed in time (e.g., climate change mitigation). Thus, people face a situation where the best possible outcome for the collective (including themselves) is achieved only when each individual is willing to set his/her personal interests aside.

2.2.1 Perceived uncertainty in social dilemmas

Incomplete knowledge about the behaviour of other group members constitutes a possible influence in situations classified as social dilemmas, commonly referred to as social uncertainty (Biel & Gärling, 1995). A generic finding is that people are more willing to behave according to collective interests when social uncertainty is reduced, for instance, through the perception of norms (Biel, Eek, & Gärling, 1997; Von Borgstede, Dahlstrand, & Biel, 1999). Supporting evidence for assuming similar relations in an environmental context comes from studies that show that people are more likely to buy eco-friendly product alternatives (Gupta & Ogden, 2009) and are more likely to use public transportation (Garvill, 1999) when they expect that others will make similar choices.

Imperfect information about the structural features of the situation is another aspect that might affect choices in social dilemmas, often described as environmental uncertainty (Biel & Gärling, 1995). Research suggests that people are less likely to engage in behaviour that is meant to serve collective interests when they lack knowledge about the relevant characteristics of the situation, for instance, the size of a common resource (Rapoport, Budescu, Suleiman, & Weg, 1992) or the provision point needed to provide a public good (Wit & Wilke, 1998). Moreover, Wit and Wilke (1998) showed that the extent to which environmental uncertainty influences these behaviours also depends on the extent to which the situation reflects social

uncertainty. They found that high environmental uncertainty restrained individual contributions to the provision of a public good when it was met with high social uncertainty but not when the latter was low.

2.2.2 Perceived efficacy in social dilemmas

One factor that can affect contributions in social dilemmas are judgements about the potency of one's behaviour in helping the group achieve a desired collective outcome (i.e., self-efficacy in social dilemmas; cf. Kerr, 1996).³ This idea is backed by research that has shown that the more group members believe their contributions help to enhance collective welfare, the more likely they are to make choices that cater to collective than to personal interests (e.g., Kerr & Kaufman-Gilliland, 1994; Kerr, 1992). What makes self-efficacy of particular interest in the context of large-scale social dilemmas (e.g., environmental sustainability) is that these percepts have been linked to the number of individuals involved in the situation.⁴ Kerr (1989) demonstrated in a series of experiments that self-efficacy is positively related to individual contributions to public goods and that self-efficacy in social dilemmas tends to decline as group size increases.

Another factor that can play a role are individual estimates of whether the group as a whole can succeed in achieving a desired collective outcome (i.e., collective efficacy in social dilemmas; cf. Kerr, 1996). This idea is in accordance with studies that have shown that people are more likely to contribute in social dilemmas if they believe that the group as a whole can do what is needed to achieve a set goal (Seijts, Latham, & Whyte, 2009; Seijts & Latham, 2000). Research has also shown that higher (vs.

³ This take on self-efficacy has conceptual similarities with the concept of perceived consumer effectiveness, described "as a domain-specific belief that the efforts of an individual can make a difference in the solution to a problem" (Ellen, Wiener, & Cobb-Walgren, 1991, p. 103). For a discussion about these and related concepts, see Hanss, Böhm, Doran, and Homburg (2016).

⁴ Large-scale social dilemmas are "situations where many people interdependently act under conditions that represent high anonymity, low degree of communication, where choices to cooperate or defect are made by people in a collective that is weakly united, and where individuals are geographically separated" (Von Borgstede et al., 2013, p. 177).

lower) levels of collective efficacy can be associated with a reduced fear of being exploited by other group members (De Cremer, 1999) as well as with groups of smaller rather than larger size (Kerr, 1989; Seijts et al., 2009).

Consistent with the social dilemma perspective on environmental sustainability, one might expect self-efficacy to play a role in individual travel decisions, and two recent studies have supported this view. Doran et al. (2015, 2016) found that the more people believed that their choices as tourists could be beneficial for the environment, the more willing they were to choose eco-friendly travel options (though it required personal sacrifices). These findings complement research that found that a lack of perceived behavioural control is a reoccurring reason that people give for not behaving in an environmentally friendly fashion while on vacation (Hares et al., 2010; Hindley & Font, 2014; Juvan & Dolnicar, 2014b). It is also in line with the broader literature on sustainable consumerism in which similar associations have been reported for grocery shopping (Hanss et al., 2016; Hanss & Böhm, 2010).

Comparable findings have been reported in connection with collective efficacy. Individual differences in this respect can to some extent explain whether people show environmental engagement in the workplace (M.-F. Chen, 2015; Homburg & Stolberg, 2006), whether they recycle their waste at home (Bonniface & Henley, 2008), whether they accept energy efficient product alternatives (Barth, Jugert, & Fritsche, 2016), or whether they show environmental engagement on a community level (Bamberg et al., 2015; Rees & Bamberg, 2014). Another outcome from Doran et al.'s (2015, 2016) studies was that collective efficacy was not only positively associated with intentions to make eco-friendly travel choices, but in fact, such intentions were more sensitive to variability in collective efficacy than in self-efficacy.

3. Theoretical and empirical foundations

Individual actions that benefit the environment are often “less profitable, less pleasurable, more time-consuming or more effortful than environmentally-harmful actions” (Steg et al., 2014, p. 105). Consequently, an understanding of how to bring about behavioural change for environmental reasons also but not solely requires the identification of factors that motivate people to deviate from choices that present themselves as the most reasonable ones from an individual perspective (e.g., behavioural options that promise to minimize immediate personal costs). This chapter provides theoretical and empirical foundations for considering the psychosocial factors addressed in this project, namely, perceived norms and social comparison.

3.1 Perceived norms

One factor that has generally been linked to cooperation in real-world social dilemmas are social norms (Biel & Thøgersen, 2007; Thøgersen, 2008). Social norms can be described as “rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws” (Cialdini & Trost, 1998, p. 152). Past research has indicated that norms can exert strong influences on how people behave, even though these influences often remain underdetected (Barth et al., 2016; Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). Another factor that could play a role in this regard involves the moral obligations that people feel towards the behaviour in question, often described as personal norms (Biel & Thøgersen, 2007; Von Borgstede et al., 1999). This project explores the relevance of perceived norms for explaining eco-friendly travel choices in the tourism domain.

3.1.1 Social norms

Cialdini and colleagues (Cialdini, Reno, & Kallgren, 1990; Kallgren, Reno, & Cialdini, 2000; Reno, Cialdini, & Kallgren, 1993) differentiated between two types of social norms (injunctive and descriptive) that can have a separate or a combined

influence on behaviour. Injunctive social norms reflect perceptions about what most other people consider appropriate in social settings. They “direct action by promising informal sanctions (mostly in the form of interpersonal approval/disapproval) for what is deemed by these others to be morally relevant behavior” (Cialdini, 2007, p. 264). Descriptive social norms reflect perceptions about what most other people actually do in a given social context. While “injunctive social norms mobilize people into action via social evaluation, descriptive social norms move them to act via social information—in particular, social information about what is likely to be adaptive and effective conduct in the setting” (Cialdini, 2007, p. 264). Whether injunctive or descriptive norms affect behaviour depends on the extent to which they are salient in the situation (Kallgren et al., 2000; Reno et al., 1993), and their behavioural impact tends to be stronger when norms are aligned rather than misaligned (Cialdini, 2003; Smith et al., 2012).

Past research has shown that social norms are an important antecedent of pro-environmental intentions (for a recent meta-analysis, see Klöckner, 2013).⁵ For example, the more people think that significant others consider household recycling to be something that ought to be done, the more likely they are to intend to engage in such behaviour (K. M. White, Smith, Terry, Greenslade, & McKimmie, 2009), and the more people think that significant others expect them to stay in eco-friendly hotels, the more likely they are to plan such trips in the future (Han, Hwang, Kim, & Jung, 2015). Exposure to messages conveying injunctive social norms has also been shown to motivate people to make less frequent use of free plastic bags offered whilst shopping (De Groot, Abrahamse, & Jones, 2013), to attach anti-ad stickers to their mailboxes (Hamann, Reese, Seewald, & Loeschinger, 2015), to show positive

⁵ Many of these studies have employed the theory of planned behaviour (Ajzen, 1991). It states that perceived social pressures to act according to the expectations of important referents, along with attitudes towards the behaviour and perceived behavioural control, influence behavioural intentions and subsequently, actual behaviour. These perceptions, also known as subjective norms, have been viewed as a variant of injunctive norms (Lapinski & Rimal, 2005; Thøgersen, 2006).

attitudes towards forms of political activism (Smith & Louis, 2008), and to be more supportive of environmental policies (De Groot & Schuitema, 2012).

People also modify their behaviour in response to descriptive social norms. This is evident, for instance, from intervention studies targeted towards encouraging people to reuse towels in hotel settings (Goldstein, Cialdini, & Griskevicius, 2008; Mair & Bergin-Seers, 2010; Morgan & Chompreeda, 2015; Reese, Loew, & Steffgen, 2014; Terrier & Marfaing, 2015). A common result is that normative messages conveying information about the conservation efforts made by other hotel guests (e.g., "Almost 75% of guests who are asked to participate in our new resource savings program do help by using their towels more than once"; Goldstein et al., 2008, p. 474) can increase towel reuse above baseline rates (see also Bohner & Schlüter, 2014).⁶ Similar effects have been reported in studies in which the provision of descriptive social norms was successful at motivating people to commute via public transport instead of by private car (Kormos, Gifford, & Brown, 2015), promoting household energy savings (Nolan et al., 2008), increasing individual efforts targeted towards reducing household waste (Reese, Loeschinger, Hamann, & Neubert, 2013), increasing individual efforts to recycle (Schultz, 1999), or decreasing littering in public spaces (Cialdini et al., 1990; Reno et al., 1993).

3.1.2 Personal norms

It is generally conceded that personal norms are of paramount importance for explaining behaviour that goes beyond mere self-interests (Schwartz, 1977; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). This makes them a promising field of inquiry to explain behaviour that has collective rather than personal benefits (Biel & Thøgersen, 2007; Von Borgstede et al., 1999). According to Schwartz (1977), a personal norm reflects self-expectations towards acting in a certain way in a certain

⁶ Keeping in mind that studies have reported mixed results on the subject (e.g., Goldstein et al., 2008; Mair & Bergin-Seers, 2010), there is converging evidence that conveying descriptive norm information might increase towel reuse rates over and above that of standard messages that appeal to environmental concerns (see Scheibehenne, Jamil, & Wagenmakers, 2016).

situation, such that, if these self-expectations become activated, they are experienced in the form of feelings of moral obligation. They can be distinguished from social norms in that their regulatory impact on behaviour does not come through the anticipation of external sanctions (Thøgersen, 2006), and there is empirical evidence in support of this view (Han et al., 2015; Onwezen, Antonides, & Bartels, 2013). This evidence generally supports Schwartz's (1977) notion "that the sanctions attached to personal norms are tied to the self-concept. Anticipation of or actual conformity to a self-expectation results in pride, enhanced self-esteem, security, or other favorable self-evaluations; violation or its anticipation produce guilt, self-deprecation, loss of self-esteem, or other negative self-evaluations" (p. 231).

Personal norms have been associated with intentions towards, as well as with actual engagement in, pro-environmental behaviour across contexts (Bamberg & Möser, 2007; Dolnicar & Leisch, 2008; Dolnicar, 2010; Klöckner, 2013; Thøgersen, 2006). People with strong personal norms (i.e., those who feel morally obliged to engage in the respective behaviours; cf. Schwartz, 1977) tend to be more inclined to purchase organic food and to recycle (Thøgersen & Ölander, 2006; Thøgersen, 2009); they tend to engage more often in political movements that address environmental issues (Stern et al., 1999), and they express a greater willingness to modify their commuting behaviours for environmental reasons (Bamberg, Hunecke, & Blöbaum, 2007; Nordlund & Garvill, 2003). Personal norms have also been identified as an indicator of intentions to behave in environmentally friendly ways on vacation (Choi, Jang, & Kandampully, 2015; Han et al., 2015; Han, Jae, & Hwang, 2016; Mehmetoglu, 2010). Making personal norms salient (e.g., through persuasive messages) has further been shown to increase people's likelihood of showing pro-environmental behaviours, such as picking up trash in protected areas (Brown, Ham, & Hughes, 2010) and using fewer plastic bags when grocery shopping (De Groot et al., 2013).

Results from two meta-analyses (Bamberg & Möser, 2007; Klöckner, 2013) have shown that personal norms tend to be more strongly associated with pro-environmental intentions than social norms. Thøgersen (2009) provided a possible explanation by showing that the former "are more broadly and more strongly

embedded in the consumer's cognitive structures and that personal norms mediate not only the influence of subjective social norms, but in addition practically all behavioral effects of reported reasons and motives" (p. 358). Another common finding in the literature is that the strength of associations between injunctive social norms and self-reported pro-environmental behaviour becomes weaker (and sometimes nonsignificant) when personal norms are added to the regression model (Biel & Thøgersen, 2007; Thøgersen, 2006). It was proposed earlier that norms are acquired and adjusted in social interactions throughout a person's life (Schwartz, 1977). In accordance with this proposition, Thøgersen (2009) argued that personal norms towards behaving in environmentally responsible ways are to some extent derived from an internalisation of the perceived social expectations associated with significant others. Empirical evidence in support of this view has been reported in both everyday settings (Thøgersen & Ölander, 2006; Thøgersen, 2009) and recreational settings (López-Mosquera, García, & Barrena, 2014; Ong & Musa, 2011).

3.2 Social comparison

Social comparison theory (Festinger, 1954) introduced the idea that people have an inherent tendency to evaluate the self, which can be achieved—when there are no objective criteria at their disposal—by comparing one's own abilities and opinions with those of other people. Social comparison is the process by which aspects of oneself, whether intentionally or not, are contrasted with other people (Suls, Martin, & Wheeler, 2002). It informs us about our relative positioning within the social world, it teaches us how to deal with challenging situations, and sometimes, it simply makes us feel better about ourselves (Buunk & Gibbons, 2007). Whereas empirical evidence suggests that social comparisons occur spontaneously, effortlessly, and relatively automatically (Gilbert, Giesler, & Morris, 1995), there are individual differences in the extent to and the frequency with which people compare themselves with others (Buunk & Gibbons, 2006; Gibbons & Buunk, 1999). Despite an initial focus on abilities and opinions, research on the subject has extended its scope to

capture various other characteristics that can be compared between oneself and others (Buunk & Gibbons, 2007).

Ever since social comparison theory was first introduced, research has been devoted to exploring predictors and outcomes of social comparison processes (Buunk & Gibbons, 2007; Suls et al., 2002). Recently, research began to consider social comparison as a relevant factor in relation to behaviours that have environmental implications (e.g., Abrahamse & Steg, 2013; Gifford, 2011; Leary, Toner, & Gan, 2011; Van Raaij, 2002). The current project focuses on social comparison biases, as well as individual responses to social comparison feedback.

3.2.1 Social comparison biases

Biases that affect the outcomes of social comparison processes are a constant finding in the literature (Chambers & Windschitl, 2004). Accordingly, these biases have also caught the attention of researchers interested in exploring their role in an environmental context. Examples include studies that have shown that people have a tendency to perceive themselves as being less at risk for being affected by environmental hazards than their peers (e.g., Jiménez-Castillo & Ortega-Egea, 2015; Pahl, Harris, Todd, & Rutter, 2005) and to hold self-favourable views when comparing themselves with others on subjects about environmental issues (e.g., Pieters, Bijmolt, Van Raaij, & De Kruijk, 1998; J. A. White & Plous, 1995). The current project follows the latter line of research, thereby focussing on comparisons with an anticipated normative standard (cf. Alicke & Govorun, 2005).

Alicke and Govorun (2005) proposed two different ways of measuring social comparison biases: direct and indirect. The direct method instructs participants to indicate the degree to which they perceive themselves to be (dis)similar to a typical other on a dimension of interest. For example, after introducing the dimension of interest, participants are asked to indicate their relational standing on a scale ranging from substantially below average to substantially above average. The basic approach rests on the idea that the more participants deviate from the midpoint (often labelled average), the greater the perceived differences between themselves and others (Alicke

& Govorun, 2005). The indirect method instructs participants to answer separate items with regard to themselves (e.g., how they perceive their own characteristics) and with regard to the comparison target (e.g., what they think the characteristics of a typical other are). Difference scores can be computed to assess whether there are perceived differences between oneself and others, and if so, to give an estimate of the strength and direction of the contrast (Alicke & Govorun, 2005; for an example, see Doran et al., 2015).

Some authors have argued that social comparisons pertaining to environmental issues can have consequences for how people behave, particularly when the outcomes of these comparisons are self-favourable in nature (see also Van Raaij, 2002). Leary et al. (2011) stated “that believing that one is already better-than-average in environmental responsibility may deter people from engaging in environmental behaviors as fully as they would if they estimated their degree of greenness accurately” (p. 164). Similarly, Doran et al. (2015) proposed “that people who believe that they hold more positive attitudes towards environmentally sustainable tourism than the typical tourist should be less optimistic that others will contribute their share and, hence, be less likely to contribute themselves” (p. 283). Indirect evidence that a favourable social comparison—such as viewing oneself more positive than one views other tourists—may undermine individual willingness to behave environmentally friendly on vacation comes from the literature on group cooperation. This literature shows that people are more likely to expect cooperative behaviour from other group members if they believe the others are similar to themselves rather than dissimilar (Kaufmann, 1967; Tornatzky & Geiwitz, 1968), and that knowledge about the behaviour shown by similar (but not dissimilar) others can affect behavioural choices in situations resembling social dilemmas (Parks, Sanna, & Berel, 2001).

3.2.2 Social comparison feedback

Social comparison feedback involves the provision of feedback about one’s own performance in direct comparison with the performances of others (Abrahamse & Steg, 2013). One issue to consider is whether one’s own performance is worse,

similar, or better than the performances of others. This is important because the responses that social comparison feedback evokes might depend on the direction of the contrast (Aitken, McMahon, Wearing, & Finlayson, 1994; Schultz et al., 2016; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Another issue to be taken into account is whether the feedback involves comparisons within or between groups. A broad distinction can be made for comparisons that pertain to membership in different groups (e.g., Ferguson, Branscombe, & Reynolds, 2011; Rabinovich, Morton, Postmes, & Verplanken, 2012) as opposed to situations in which individuals compare themselves with their fellow group members (e.g., Brook, 2011; Rabinovich & Morton, 2012; Toner, Gan, & Leary, 2014).

The present project focusses on situations in which individual feedback is combined with group feedback, hence involving comparison between oneself and other group members. Research in this vein has shown that comparative feedback can affect pro-environmental behaviour in various domains (e.g., Dixon, Deline, McComas, Chambliss, & Hoffmann, 2015; Siero, Bakker, Dekker, & Van den Burg, 1996; see also Abrahamse & Steg, 2013). In fact, experimental studies employing ecological footprint information have demonstrated that informing a person that his/her own performance is worse than those of other group members can strengthen the individual willingness to engage in pro-environmental behaviour even when the feedback is bogus (Brook, 2011; Toner et al., 2014).

However, contrasting one's own performance with the performances of others might not always have desirable consequences. This outcome is evident from studies that have shown that informing households about their own and other households' energy consumption can actually make a household's own consumption levels increase (Aitken et al., 1994; Schultz et al., 2007). This occurs when feedback indicates that one's own present consumption levels are much lower than the average consumption of comparable households and no further information is provided. Research has suggested that adding an injunctive norm (e.g., in the form of messages that indicate social approval of the targeted behaviour) provides an opportunity to buffer against what can be an undesirable consequence of interventions that employ combinations

of individual and group feedback (Schultz et al., 2016; Schultz et al., 2007; but see Allcott, 2011).

Social comparison feedback and perceived efficacy

There has been some debate about whether changes in self- and collective efficacy could play a role in explaining individual responses to feedback about the environmental implications of different lifestyles. Carrico and Riemer (2011), for instance, argued that group feedback (e.g., the energy savings of the total building) may promote the belief that the collective can realistically achieve the desired outcome (e.g., reducing negative environmental impacts), and as a result, this may motivate individuals to work towards accomplishing this goal. Abrahamse and Steg (2013) made a similar case for considering changes in perceived efficacy as a potential mechanism for behavioural change. They speculated that individual feedback has the potential to enhance perceptions of self-efficacy, whereas group feedback has the potential to enhance perceptions of collective efficacy.

One challenge in promoting environmental engagement is that it may require individuals to forgo personal interests whilst facing uncertainties about whether their actions actually make a difference (see Chapter 2.2.2). Following this line of thought, social comparison could provide people with an estimate of whether their actions (e.g., choosing eco-friendly travel options) are likely (or unlikely) to result in the desired outcome (e.g., reducing negative environmental impacts linked to tourism). This view is based on the notion that exposure to social comparison information (along with other forms of vicarious experiences) constitutes a possible source for shaping perceptions of efficacy (Bandura, 1997; Steyn & Mynhardt, 2008). Furthermore, it is aligned with empirical evidence for the idea that contrasting one's own performance with those of other people can shape perceptions of self- and collective efficacy (Miyake & Matsuda, 2002; Prussia & Kinicki, 1996).

Feedback interventions target behavioural change by informing recipients about the positive and negative consequences of performing the targeted behaviour (Abrahamse, Steg, Vlek, & Rothengatter, 2005). This project addresses whether the

degree to which people believe that their choices as tourists can bring about benefits for the environment is affected by the sort of information conveyed in social comparison feedback. A strengthening effect was expected in response to unfavourable feedback (i.e., one's own performance is worse than the performances of others) because it may indicate that other group members already behave in a more environmentally friendly manner than oneself, thus increasing the chances that personal sacrifices will not be wasted if one chooses an eco-friendly travel option. A weakening effect was expected in response to favourable feedback (i.e., one's own performance is better than the performances of others) because it may seem that other group members already act in a less environmentally friendly way than oneself, thus lowering the chances that environmental challenges can be dealt with effectively irrespective of whether one chooses an eco-friendly travel option.

Social comparison feedback and in-group identification

Social comparison is thought to be particularly functional for gaining accurate self-knowledge when there is similarity with the comparison target (Festinger, 1954; Suls et al., 2002). Accordingly, Abrahamse and Steg (2013) implied that the effectiveness of social comparison feedback in influencing the targeted behaviour should depend on the characteristics of the target group and that stronger effects could be expected for comparisons with the performances of others who share characteristics similar to oneself. One aspect the authors considered worth mentioning in this regard is the extent to which an individual conceives of himself/herself as being a member of a certain group, broadly referred to as the level of in-group identification (see e.g., Tajfel & Turner, 1986).

Research in this vein has shown that the more people identify with their own group, the more likely they are to perceive fellow group members as similar to themselves (Tropp & Wright, 2001) and the more likely they are to discriminate against members of other groups (Perreault & Bourhis, 1999). Of particular relevance for this project are studies that have shown that higher (vs. lower) levels of in-group identification can be linked to behaviours that put collective interests before personal ones (De Cremer & Van Vugt, 1999) and that people are more compliant with perceived norms

that are more prevalent in an in-group than in an out-group (Smith & Louis, 2008; K. M. White et al., 2009). Furthermore, research has linked group identification with individual willingness to become environmentally engaged at the community level (Bamberg et al., 2015; see also Rees & Bamberg, 2014).

Two studies explicitly looked at whether group identification affects responses to social comparison feedback in an environmental context. One study provided feedback on an individual's carbon footprint contrasted with that of another person living in the same nation (Rabinovich & Morton, 2012). Participants' responses depended on the degree to which they identified with the reference group (e.g., feedback indicating a lower than average carbon footprint heightened perceived needs for societal change when group identification was strong but not when it was weak). Another study looked at feedback in the context of energy conservation among university students (Graffeo, Ritov, Bonini, & Hadjichristidis, 2015). Participants received information that varied in terms of whether the reference household belonged to an in-group or an out-group (i.e., a person living in the same neighbourhood vs. a person living in a different neighbourhood) and whether the reference household was identified or unidentified (i.e., whether it included an age, name, and photograph vs. did not include an age, name, or photograph). It turned out that the feedback that was most effective at promoting plans to save energy conveyed information about other households that belonged to the in-group and were unidentified. This finding held when compared with baseline rates with no feedback.

3.3 Summary of research aims

The overarching aim of this project was to increase knowledge about the relevance of the social context for eco-friendly travel choices in the tourism domain, focussing on perceived norms and social comparison thereof. Some parts were exploratory (Paper I), whereas other parts were concerned with testing specific hypotheses (Papers II and III). Figures 1 and 2 provide graphic summaries of the variables addressed in this project, and when applicable, their hypothesised associations.

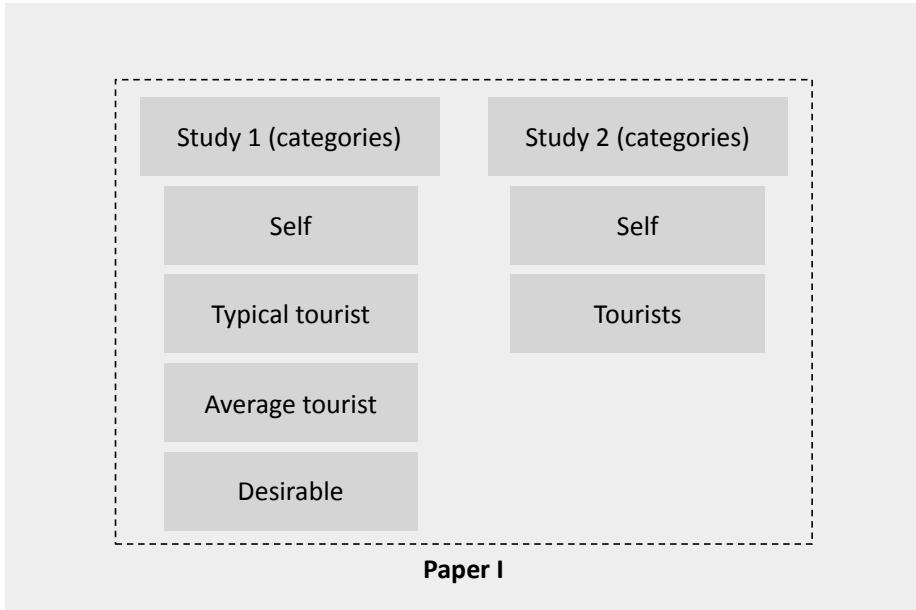


Figure 1. Categories included to measure and compare various attitude judgements in Paper I.

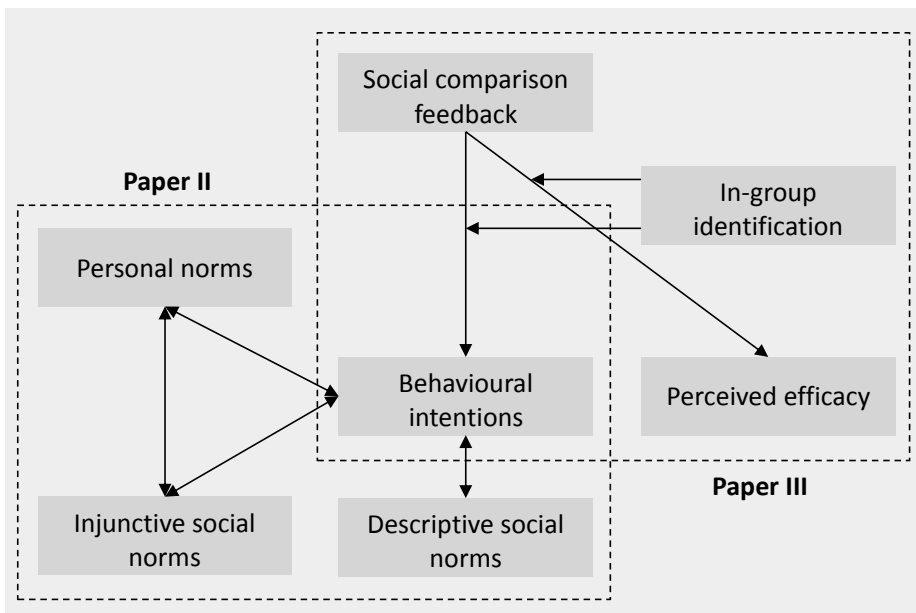


Figure 2. Associations investigated in connection with perceived norms (Paper II) and social comparison feedback (Paper III).

4. Method

This chapter summarises the methodological approach taken to address the research aims. It includes information about how the literature review and statistical analyses were conducted (see below) as well as about how the research aims were addressed in each paper (including participant characteristics and recruitment, materials and procedures, and data analyses).

The literature was searched by consulting databases and search engines supplied by the University of Bergen Library. This included keyword searches in the Web of Science, PsycINFO, and Google Scholar. Different synonyms were included to cover a broad range of literature relevant to this project. For instance, searches were not restricted to the term pro-environmental behaviour, but the searches included other similar terms such as ecological behaviour, sustainable behaviour, green behaviour, eco-friendly behaviour, and so forth. Reference lists of important work in the field were searched for additional material. Recent volumes of important journals (e.g., *Journal of Environmental Psychology*, *Journal of Sustainable Tourism*) were also inspected.

The data were analysed with statistical procedures available in SPSS (v. 23 and earlier), which was supplied by the University of Bergen. If additional macros were used, this was indicated in the Method section of the corresponding paper.

4.1 Paper I

Some studies have begun to investigate social comparison when considering environmental aspects of holidaymaking, indicating that people often view themselves more positively than they view others (Holloway & Green, 2011; Juvan & Dolnicar, 2014b; Juvan et al., 2016). A shortcoming of these studies is that the extent to which the findings could be generalised was limited, for instance, by small sample sizes (for an exception, see Juvan et al., 2016). The first part of the current project explored social comparison involving attitudes about environmental issues in tourism.

The aim was to test the robustness of results that were mentioned above, in addition to considering social comparison in connection with levels of desirability expressed for the respective attitudes.

4.1.1 Participants

Contact was initiated by the research staff who asked individuals whether they were currently on vacation. Individuals who answered affirmatively were asked if they would agree to participate in a study about tourist experiences. Upon request, they were told that they were considered tourists if they were visiting the area for a minimum of 1 day and a maximum of 1 year. This information reflects the main criteria from the definition of tourism provided by the UNWTO (1995); see Chapter 2. Individuals who agreed were given a questionnaire that instructed them to answer the questions personally and to the best of their knowledge. There was no financial incentive, and participation was completely voluntary.

Study 1

Participants were $N = 1,607$ individuals visiting Western Norway: 53% female, 18-88 years of age, $M_{\text{age}} = 41.18$, $SD_{\text{age}} = 15.34$. The data were collected during the summer of 2010 at locations that tend to attract a variety of visitors (e.g., tourist information offices, famous landmarks). Participants came from 61 different nations.

Study 2

Participants were $N = 2,076$ individuals recruited at locations similar to those in Study 1, but at a different point in time, which was during the summer of 2011: 51% female, from 66 different nations, 18-86 years of age, $M_{\text{age}} = 39.80$, $SD_{\text{age}} = 16.02$.

4.1.2 Materials and procedure

After being given general information related to the study (e.g., institutional affiliation, contact address), participants were asked to provide sociodemographic information (e.g., age, gender). Additional items included a variety of issues related to a person's experience as a tourist. This project analysed responses to items that

addressed environmental aspects of tourism (see below). Questionnaires were available in English (Studies 1 and 2) and German (Study 2).

An indirect method was employed to examine social comparison involving a normative standard (see Chapter 3.2.1). Such a method was recommended by Alicke and Govorun (2005) if the aim was to study the direction of perceived dissimilarities between oneself and others. Significant differences between judgements of one's own and other tourists' attitudes in conjunction with a positive difference score would indicate a favourable social comparison; the larger the difference score, the greater the strength of the contrast (cf. Alicke & Govorun, 2005). The specifics of the items used in each study are presented below.

Study 1

Participants were given variants of an otherwise similar questionnaire, and only the item instructions varied (for a similar approach, see Larsen & Brun, 2011).

Participants were instructed to answer questions about their personal attitudes (Condition 1, $n = 463$), about what they think the attitudes of a typical tourist (Condition 2, $n = 390$) or an average tourist (Condition 3, $n = 372$) are, or to indicate the degree to which they consider these attitudes to be desirable (Condition 4, $n = 369$).

Attitudes can be seen as evaluative judgements of an entity with a certain degree of favourableness or unfavourableness (Eagly & Chaiken, 1993). This project investigated attitudes about environmental issues in tourism. An example item was: "The diversity of nature must be valued and protected". Each participant group was presented the same items, which differed only in their labels and instructions (see above). The scale labels were 1 (*Don't agree*) to 7 (*Fully agree*; Condition 1), 1 (*Wouldn't agree*) to 7 (*Would fully agree*; Conditions 2 and 3), or 1 (*Not good/desirable*) to 7 (*Very good/desirable*; Condition 4).

For each item set (i.e., four items presented to each group), a principal component analysis (PCA) yielded one component (eigenvalue over 1). Index variables reflected the mean across these items, under the assumption that higher scores indicated

stronger personal attitudes (Condition 1, $\alpha = .91$), perceptions about the attitudes of a typical tourist (Condition 2, $\alpha = .95$) or an average tourist (Condition 3, $\alpha = .93$), and a stronger level of desirability (Condition 4, $\alpha = .90$).

Study 2

Participants were instructed to judge their personal attitudes (Condition 1, $n = 1,084$) or the attitudes of tourists generally (Condition 2, $n = 970$). Whereas the items for Condition 1 were identical to those used in Study 1, the items for Condition 2 were slightly adjusted. An example item was: “Tourists think that the diversity of nature must be valued and protected”. Both participant groups were asked to indicate their agreement with each of the presented statements on a scale that ranged from 1 (*Don't agree*) to 7 (*Fully agree*).

One component (eigenvalue over 1) was retained when each item set was analysed in separate PCAs. Index variables were generated by averaging the scores across each item set. Higher scores indicated stronger attitudes for one personally (Condition 1, $\alpha = .90$) or for tourists generally (Condition 2, $\alpha = .92$).

4.1.3 Data analyses

The initial sample in Study 1 included individuals staying at a Hostelling International facility. A decision was made to exclude these participants from the analyses because they were overrepresented in Condition 1. Moreover, participants under the age of 18 or who did not indicate their age were also excluded. Similar procedures were applied in Study 2, but no participants were excluded on the basis of the type of accommodation they were staying at; neither type was overrepresented in any of the two conditions. A few cases had missing data on the index variables (i.e., participants failed to respond to any items in the respective condition), which was handled by applying listwise deletion (see Tabachnick & Fidell, 2014).

PCAs with varimax rotation were used to probe the correlational structure of the items. Independent t -test, one-way independent analysis of variance (ANOVA), and χ^2 tests were used to explore group differences for age and gender. Independent t -test

and one-way independent ANOVA were also used to test for group differences in the index variables. Welch's *F*-ratio (Study 1) and an adjusted version of the independent *t*-test (Study 2) were applied to deal with variance heterogeneity (see Field, 2013). Similar considerations motivated post hoc testing via the Games-Howell procedure in Study 1.

4.2 Paper II

Even though people may consider environmental issues to be important, travel choices are also guided by other factors such as price, convenience, and time (see e.g., Miao & Wei, 2013). The second part of the project looked at associations between perceived norms and intentions to choose eco-friendly travel options. A specific focus was placed on travel choices in which personal and collective interests appeared to be in conflict (see Chapter 2.2). It was hypothesised that social (descriptive and injunctive) and personal norms would each be positively associated with behavioural intentions, without making assumptions about their relative importance. Another hypothesis was that personal norms would mediate (at least partly) the association between injunctive social norms and behavioural intentions.

4.2.1 Participants

Initial contact was established by approaching individuals at the below mentioned location, followed by a request to participate in a study on travel experiences. The instructions were similar to those presented earlier (see Chapter 4.1.1). It was explicitly stated that participants needed to be on vacation and had to be at least 18 years old to be eligible to be participants. Individuals participated voluntarily in the study without being compensated financially.

Participants were $N = 762$ individuals visiting Queenstown, New Zealand, in February, 2013. Their mean age was 36.65 ($SD = 17.12$, Range: 18-81 years); 82% of participants were self-identified international tourists, and 54% were female. They were contacted at close distances from the waterfront, located right in the town

centre. This location tends to attract visitors as it provides an assortment of meeting places (e.g., parks, cafes, restaurants) as well as opportunities to engage in leisure activities (e.g., watersports, boat excursions).

4.2.2 Materials and procedure

The first part of the questionnaire gave participants some general information about the study (e.g., institutional affiliation, contact address), followed by sociodemographics (e.g., age, gender). The second part of the questionnaire contained items addressing several aspects of travelling; yet, this project paid attention only to perceived norms and behavioural intentions in an environmental context.

Studies indicate that the willingness to accept personal sacrifices is an important determinant of consumer choices that benefit the environment (Hedlund, 2011; Rahman & Reynolds, 2016; Thøgersen, 2000). This project addressed five tourism-related behaviours, each related to personal sacrifices of some kind. Two example items were "... pay more for a trip if this helps to protect the environment" and "... make an effort to stay at environmentally friendly accommodation when travelling".

The intention items were introduced by the phrase "How likely is it that you would ..." followed by the five behaviours in question (see the examples above).

Participants could respond to the items on a scale ranging from 1 (*Very unlikely*) to 7 (*Very likely*). One component (eigenvalue over 1) was retained after these items were entered into a PCA. An index variable was created by averaging the item scores ($\alpha = .88$). Higher scores indicated stronger intentions to choose eco-friendly travel options.

The norm items referenced the same five behaviours with scale instructions directing the focus towards the specific norm in question. This is a common approach in survey research addressing the role of perceived norms in an environmental context (see e.g., Thøgersen, 2006, 2009). Instructions were provided as follows: "How many of the people who are important to you ..." for descriptive social norms (1 = *None*, 7 = *All*), "Most people who are important to me think that one ought ..." for injunctive social norms (1 = *No, definitely not*, 7 = *Yes, definitely*), and "I do feel a moral obligation

...” for personal norms (1 = *Strongly disagree*, 7 = *Strongly agree*). Entering these items into a PCA resulted in three components (eigenvalue over 1): items measuring descriptive social norms ($\alpha = .95$), injunctive social norms ($\alpha = .96$), and personal norms ($\alpha = .94$). Higher scores indicated stronger perceived norms.

4.2.3 Data analyses

Participants younger than 18 years (or who did not indicate their age) were excluded from the analyses. Cases with missing data on the index variables (i.e., no answer given for any of the respective items) were subjected to listwise deletion during the analyses.

PCAs with direct oblimin rotation were computed to probe the correlational structure of the measures. Pearson correlations and multiple regressions were computed to investigate associations between perceived norms and behavioural intentions. The relative importance of social (descriptive and injunctive) and personal norms was judged on the basis of standardised beta coefficients. The more variance that an individual variable can explain in a dependent variable, the more important the independent variable is (Field, 2013). Moreover, the correlation coefficients were compared with each other (see Weaver & Wuensch, 2013).

Simple mediation was tested with a bootstrapping method conducted via PROCESS for SPSS (Model 4; Hayes, 2013). Personal norms were included as the mediating variable, injunctive social norms as the independent variable, and behavioural intentions as the dependent variable. Whereas there are no general guidelines that explain how many bootstrap samples are appropriate, a minimum of 5,000 samples has been recommended (Hayes, 2009, 2013). In the present analyses, mediation was tested with 5,000 bootstrap samples and 95% bias-corrected and accelerated confidence intervals. The use of bias-corrected confidence intervals has been suggested when the major concern is about power (Hayes & Scharkow, 2013). Kappa-squared was computed to estimate the size of the indirect effect (see Field, 2013).

4.3 Paper III

Social comparison feedback can prompt diverse responses depending on the relational standing of oneself to the reference group (see e.g., Schultz et al., 2007). The third part of the project scrutinised the associations between social comparison feedback and indicators of eco-friendly travel choices. Two studies investigated responses to feedback that provided information about the participant's own ecological footprint contrasted with that of an average member of a reference group. It was hypothesised that exposure to discrepant (vs. non-discrepant) feedback can strengthen (if it is unfavourable for the recipient) or weaken (if it is favourable for the recipient) intentions to choose eco-friendly travel options. Similar responses were hypothesised for perceptions of self- and collective efficacy. An additional interest was to test the hypothesis that in-group identification acts as a moderator of these feedback effects.

4.3.1 Participants

The recruitment strategies included advertising the study in lectures and on campus. Individuals who were approached were told that the objective was to increase knowledge about how the public views environmental issues, without providing further information about the specifics of the study. They were informed that, because the study would be conducted online, they would have to provide an e-mail address. Anyone who was interested could sign up on a paper-and-pencil sheet, or if preferred, on a recruiting webpage.

Participants in Study 1 were promised a shopping voucher (NOK100) in return for their involvement. Participants in Study 2 were promised a shopping voucher (NOK50) as compensation, and in addition, they were told that they would also be entered into a lottery to win one of five additional shopping vouchers (NOK500).

Study 1

Participants were $N = 134$ students from the University of Bergen (UiB) who were 17-40 years old ($M_{\text{age}} = 21.84$, $SD_{\text{age}} = 3.49$). The data were collected during the

spring of 2015. There was an unbalanced gender distribution with 68% female participants, probably resulting from an overrepresentation of female students in the lectures where the study was advertised.

Study 2

Participants were $N = 323$ students from the University of Bergen (UiB) who were 18-48 years old ($M_{\text{age}} = 21.99$, $SD_{\text{age}} = 3.57$). The data were collected during the fall of 2015. Female participants (69%) were again overrepresented.

4.3.2 Materials and procedure

Individuals who provided their e-mail address were sent an invitation through these channels. It included a short text that once again informed participants about the broad aims of the study (see above), thanked them for their willingness to participate, and asked them to click on a link that would direct them to the study's webpage. At that point, the participants had already been randomly allocated to one of two (Study 1) or one of four (Study 2) feedback conditions. The only difference between these conditions was that each entailed different social comparison information. A web designer assisted in the development of the webpage and the recruiting webpage.

Clicking the link provided in the invitation e-mail directed participants to an online questionnaire. The starting page included broad information about the study's aims as well as how to contact the research team if needed. At the end of each page, participants could click on a button that directed them to the following page. There was a built-in function that required participants to respond to each item for this to work. If not, participants were presented with a message that stated that all questions would have to be answered before they could move forward. All content was provided in Norwegian.

Items about gender, age, and in-group identification were followed by information that suggested that participants would be given a list of different kinds of behaviour with possible direct or indirect environmental impacts. They were told that—on the basis of their answers—a calculator would estimate their personal ecological footprint

and that information about the ecological footprint of an average student at UiB would be given as well. This was supplemented by a formal definition of ecological footprint given by the World Wide Fund for Nature (2015).

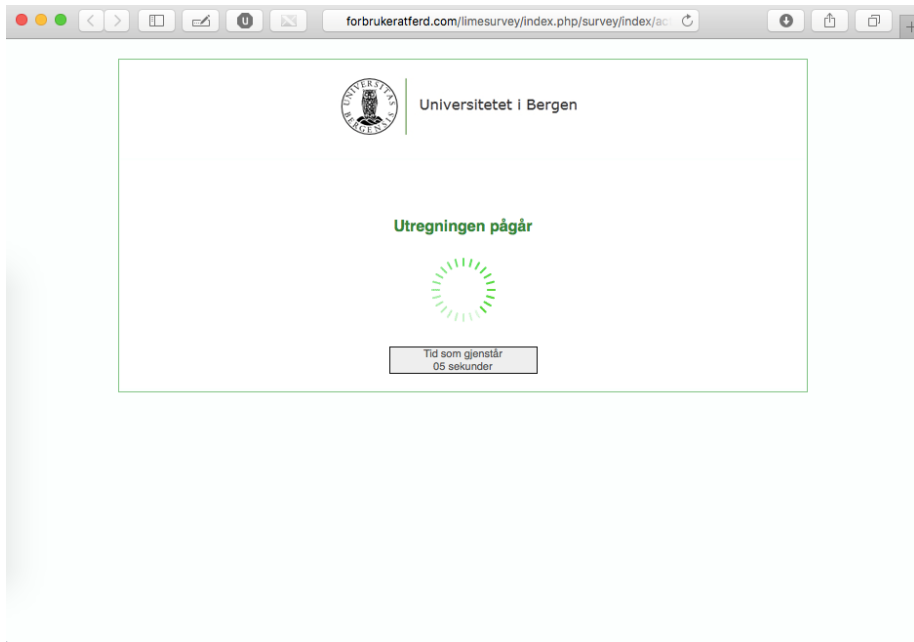


Figure 3. Screenshot of the webpage (containing the dynamic graphic) shown to the participants for the purpose of simulating the calculation process.

The following page contained a battery of questions addressing behaviours relevant to the environment (see below). Clicking a button labelled “calculate” activated a dynamic graphic that visually represented the calculation process (see Figure 3). After 15 s, participants were directed to a page that presented two types of information:

- Based on the answers the participant had provided, the number of earths that would be needed if everybody living on earth were to sustain a lifestyle like that of the participant (presented at the top of the page).

-
- Based on the answers from prior investigations among UiB students, the number of earths that would be needed if everybody living on earth were to sustain a lifestyle like that of an average UiB student (presented at the bottom of the page).

Resembling the approach used by Toner et al. (2014), this information was presented in text and in a graphical form. As indicated earlier, the participant's own relational standing to an average UiB student was varied as part of the studies. A detailed account of the information that was presented in each feedback condition can be found in the respective paper (see Paper III). After they were given the feedback, the participants were directed to measures of the dependent and manipulation check variables. The study concluded by debriefing the participants on the study's actual objective and by explaining what they needed to do to receive the promised vouchers.

The studies employed 1 x 2 (Study 1) and 2 x 2 (Study 2) between-subjects designs. The independent variables were individual feedback and group feedback. The dependent variables were behavioural intentions, self-efficacy, and collective efficacy. The specifics of each study are presented next.

Study 1

Participants were presented a total of 16 questions, each of which addressed lifestyle choices related to the environment. These were grouped under four major categories: food products (four questions), consumption (two questions), energy and recycling (five questions), and mobility and transportation (five questions). Formulations and categories resembled those used in freely available online carbon footprint calculators (see e.g., World Wide Fund for Nature, 2016). Two questions from the food products category, for example, asked participants to indicate how often they eat meat and fish. Another example from the consumption category asked participants how often they buy new electronic equipment.

After answering these questions, and based on the prior randomisation, participants were given different feedback. Condition 1 presented information that represented non-discrepant/highly-negative feedback (i.e., highly-negative individual feedback

and highly-negative group feedback). Condition 2 presented information that represented discrepant/unfavourable feedback (i.e., highly-negative individual feedback and moderately-negative group feedback).

Participants completed the Inclusion of Ingroup in the Self measure (Tropp & Wright, 2001), which is an adapted variant of the Inclusion of Other in the Self Scale (Aron, Aron, & Smollan, 1992). It is a one-item measure of in-group identification that shows different pairs of circles (one for the self and one for the group), each with a varying degree of overlap. Participants are asked to decide which pair of circles best reflects their level of identification with the reference group (for an extended discussion, see Tropp & Wright, 2001). In this project, the task was to choose from amongst seven pairs of circles that varied in their overlap with one circle labelled “self” and one circle labelled “UiB students”. Participants had previously been instructed to think of students at UiB as a group and to state the degree to which they identified with members of this group. Responses were coded 1 (if there was no overlap) to 7 (if there was large overlap) with higher scores representing a stronger level of in-group identification expressed by the participant (cf. Tropp & Wright, 2001; see also Aron et al., 1992).

The intention items were introduced by a text that explained that tourism activities are a major factor with respect to negative environmental impacts, exemplified by contributions to global climate change through CO₂ emissions. This information was complemented by a reference to a report published by the UNWTO (2009).

Participants were additionally instructed to indicate their likelihood of engaging in any of the following behaviours on their next trip. All items were introduced with the phrase “I am going to ...”, followed by the behaviour in question, for example “... avoid transportation means that produce a lot of carbon dioxide (e.g., plane), even if the alternatives take longer time”. The scale ranged from 1 (*Very unlikely*) to 10 (*Very likely*). An index variable was generated by averaging the item scores ($\alpha = .88$), with higher scores indicating stronger intentions.

Perceived efficacy was assessed with three items for each facet. An example item for self-efficacy was: “By avoiding transportation means that produce a lot of carbon dioxide (e.g., plane), I can contribute to stop environmental problems stemming from tourism activities.” An example item for collective efficacy was: “By choosing transportation means with low negative impact on the environment, we as tourists can contribute to stop environmental problems.” The scale ranged from 1 (*Strongly agree*) to 10 (*Strongly disagree*). The item scores were recoded so that higher scores indicated a stronger sense of self-efficacy ($\alpha = .87$) and collective efficacy ($\alpha = .93$). Index variables were generated by averaging the responses to each set.

One item asked participants to indicate the number of earths that would be needed to sustain their personal lifestyle. Another item asked participants to indicate the number of earths that would be needed to sustain the lifestyle of an average UiB student. They could choose from nine answer options (1-2, 2-3 ..., 9-10). Finally, participants were asked to judge how trustworthy the presented information was (1 = *Very untrustworthy*, 10 = *Very trustworthy*).

Study 2

Participants were presented the same 16 questions, followed by a category labelled tourism (five questions). These additional questions focussed on activities through which individual consumers could help to reduce CO₂ emissions resulting from tourism (Simpson et al., 2008; UNWTO, 2009). For example, participants were tasked to indicate how often they choose to pay extra in order to compensate for carbon emissions generated by their air travel. This was meant to increase feedback trustworthiness, which was perceived as moderate by participants in Study 1 (see Chapter 5.3). A lack of categories has been identified as a possible source of loss of credibility in online calculators (see Juvan & Dolnicar, 2014a). Adding the extra category was also aimed at increasing the salience of tourism-related impacts on the environment.

According to their prior randomisation, participants received different feedback. Condition 1 and Condition 2 were the same as in Study 1 (see above). Condition 3

indicated discrepant/favourable feedback (i.e., moderately-negative individual feedback and highly-negative group feedback). Condition 4 indicated non-discrepant/moderately-negative feedback (i.e., moderately-negative individual feedback and moderately-negative group feedback).

Measures of in-group identification, the dependent variables, and the manipulation check variables were almost the same as in Study 1. Differences concerned the scale labels applied to measure self- and collective efficacy, which were 1 (*Strongly disagree*) and 10 (*Strongly agree*) in this study. Cronbach's alpha for the dependent variables ranged from .83 to .90.

4.3.3 Data analyses

Some cases had missing values on one or more of the index variables: $n = 8$ in Study 1, $n = 17$ in Study 2. Listwise deletion was applied to these cases in the analyses.

Independent t -tests, one-way independent ANOVAs, and χ^2 tests were computed to explore sociodemographic differences across the feedback conditions. Descriptive statistics were inspected to gain insights into the perceived trustworthiness of the feedback. Independent t -tests and one-way independent ANOVAs were used to check whether the presented information was recalled as intended.

Associations between feedback condition, in-group identification, and the dependent variables were tested in simple moderation models (Model 1; Hayes, 2013). The models included feedback condition as a dichotomous (Study 1) or multicategorical (Study 2) independent variable and in-group identification as a continuous moderator variable (Studies 1 and 2). A significant interaction was probed with simple slopes analysis at low (1 SD below the mean), moderate (at the mean), and high (1 SD above the mean) scores of the moderator variable (Aiken & West, 1991). This was repeated for each dependent variable (i.e., behavioural intentions, self-efficacy, and collective efficacy). The computation of these analyses was made available through PROCESS for SPSS (Hayes, 2013). Mean centring was employed to correct for multicollinearity and to enhance the interpretability of the coefficients (Aiken & West, 1991).

5. Results

This chapter summarises the empirical results from the project. A more detailed description can be found in each of the respective papers.

5.1 Paper I

For the sociodemographics, the analyses indicated no significant group differences in terms of age or gender distributions. This was the case for participants who were assigned to the various conditions in Study 1 (four conditions) and Study 2 (two conditions).

For the attitude judgements, the results from Study 1 indicated significant group differences between participants in the four conditions. Post hoc testing showed that participants who were asked to judge their personal attitudes (Condition 1) reported significantly higher means than those who were asked to judge the attitudes of a typical tourist (Condition 2) or an average tourist (Condition 3). The last two were not significantly different from each other in the responses to the attitude items. Participants who were instructed to judge the desirability of the respective attitudes (Condition 4) reported significantly higher means than those judging the attitudes of others (Conditions 2 and 3). No significant group differences were reported for comparisons between Conditions 1 and 4.

The results from Study 2 yielded a similar pattern. Participants instructed to judge their personal attitudes (Condition 1) reported significantly higher means on the attitude items than those instructed to judge the attitudes of tourists generally (Condition 2).

An overall observation was that, despite the significant group differences reported above, the attitude item means were relatively high across the various conditions in Study 1 (from 5.35 to 6.21) and in Study 2 (from 5.49 to 6.42).

5.2 Paper II

Pearson correlations showed that perceived norm strength was significantly and positively associated with intentions to choose eco-friendly travel options (from .52 to .71). A closer inspection of these results revealed that personal norms showed the strongest association, followed by descriptive social norms and injunctive social norms. The last two were each associated with behavioural intentions to similar degrees. Looking at the intercorrelations between the various perceived norms, they were significantly and positively associated with each other (from .59 to .68). It seems noteworthy that the association between injunctive social norms and descriptive social norms was stronger than their respective associations with personal norms.

A hierarchical regression analysis was computed to examine how well perceived norms could explain individual differences in intentions to choose eco-friendly travel options (dependent variable). One model that included the two social norm types as independent variables explained approximately 30% of the variance in behavioural intentions. Injunctive social norms and descriptive social norms were both significantly and positively associated with behavioural intentions, albeit the latter explained the larger portion of variance. Another model added personal norms as an independent variable, which increased the amount of explained variance in behavioural intentions up to approximately 51%. Descriptive social norms still explained a significant portion of variance, but injunctive social norms became a nonsignificant indicator when used in the model that included personal norms.

The results of the mediation analysis indicated that there was a significant indirect association between injunctive social norms and behavioural intentions via personal norms. According to the interpretation guidelines referenced by Field (2013), this reflected a large sized effect.

5.3 Paper III

The initial analyses showed that across feedback conditions, participants did not differ significantly in terms of their age, gender, or levels of in-group identification with the reference group. This was the case for participants who received the feedback in Study 1 (two conditions) and in Study 2 (four conditions).

Study 1 found that social comparison feedback affected one indicator of eco-friendly travel choices, namely behavioural intentions, when certain circumstances were in place. The results of the moderated regression analyses, followed by simple slopes analysis, showed that there was no significant association between feedback condition and behavioural intentions when participants expressed low or moderate levels of in-group identification. When participants expressed high levels of in-group identification, however, there was a significant association such that those receiving non-discrepant/highly-negative feedback (Condition 1) showed weaker intentions to choose eco-friendly travel options than those receiving discrepant/unfavourable feedback (Condition 2). Associations between feedback condition and the other indicators (self- and collective efficacy) were nonsignificant in both cases; so were their respective associations with in-group identification.

Study 2 failed to find significant feedback effects. The results of the moderated regression analyses indicated that none of the addressed indicators of eco-friendly travel choices were significantly associated with feedback condition or with in-group identification. There was also no significant interaction between the latter two variables, which suggests that across different levels of in-group identification, participants responded to the feedback in a similar fashion.

An analysis of the manipulation check variables indicated that participants correctly recalled the information that was presented to them (individual feedback and group feedback) and that participants perceived this information as moderately trustworthy in Study 1 (means ranged from 5.22 to 6.54) and in Study 2 (means ranged from 5.41 to 7.20).

6. Discussion

This chapter discusses the main findings from this project, followed by methodological considerations, implications, and ethical considerations and concluding with possible directions for future research.

6.1 Main findings

6.1.1 The relevance of perceived norms

The data were aligned with major trends reported in the literature on social norms and pro-environmental behaviour (see Chapter 3.1.1). A commonly stated position in this literature is that one can distinguish between different types of social norms, each of which operates in distinct ways to modify behaviour (e.g., Cialdini, 2007; Reno et al., 1993). Results from the correlational analyses supported this position to the extent that injunctive and descriptive social norms were both positively associated with intentions to choose eco-friendly travel options. Moreover, despite their intercorrelation, each social norm type contributed to explaining significant portions of variance in behavioural intentions as shown in the regression analyses. Taken together, these findings are in line with studies that identified social norms as an antecedent for intentions to choose tourism offers that were identified as environmentally responsible (see e.g., Han et al., 2015).

A closer look at the results of the regression analyses revealed that perceptions about what important others think one should do (i.e., injunctive social norms) were less strongly associated with intentions to choose eco-friendly travel options than perceptions about whether important others engage in these behaviours themselves (i.e., descriptive social norms). This concurred with research that reported similar results for environmentally responsible behaviour in everyday life (Thøgersen, 2008). It was further in line with theoretical assumptions that the issue of environmental sustainability shares features of a large-scale social dilemma and that perceived

uncertainty about the behavioural choices made by other group members can therefore act as a barrier to individual contributions (see Chapter 2.2.1).

Descriptive social norms stood out as being important for explaining intentions to choose eco-friendly travel options; yet, injunctive social norms deserve attention too. One reason is that aligning injunctive with descriptive information can add to the behavioural impact of normative messages, compared with when only one is provided (Bator, Tabanico, Walton, & Schultz, 2014; Hamann et al., 2015; Smith & Louis, 2008; Smith et al., 2012). For instance, Thøgersen (2008) found that the frequency with which a person engages in environmentally responsible behaviour (e.g., organic food purchases) can be explained by individual variation in both social norm types, such that their combined effect is larger than their added effects. Another reason is that combining injunctive and descriptive information can prove useful in situations in which problematic behaviour is common. This is important because when people perceive that many others behave in environmentally harmful ways, they may respond by reducing their own respective environmental engagement (Cialdini, 2003). Adding an injunctive appeal, which indicates social approval of the targeted (desired) behaviour, could be a means for preventing this from happening (see Schultz et al., 2016; but see also Allcott, 2011).

Previous research has shown that moral convictions are an important explanatory variable with regard to pro-environmental behaviour in tourism settings (Dolnicar, 2010; Mehmetoglu, 2010). In line with this research, there was a positive association between one's intentions to choose eco-friendly travel options and one's feelings of moral obligation in this regard. The more people felt that they had a moral obligation to choose an eco-friendly travel option (i.e., personal norms), the more likely they were to intend to actually make these choices. Also, personal norms accounted for variance in behavioural intentions beyond that of the two social norm types. This was shown in the results of both the correlation and regression analyses.

It is a common view that personal norms play a pivotal role in motivating pro-environmental behaviour (Stern et al., 1999; Stern, 2000). The findings of this project

support this view because personal norms were of paramount importance for explaining intentions to choose eco-friendly travel options and even more so than social norms. One possible explanation for this is that personal norms are regulated by the anticipation of internal rather than external sanctions (Schwartz, 1977), thus making it possible for them to motivate environmentally responsible behaviour in situations with a lack of social control as well (cf. Thøgersen, 2008). Granted that quite often, individual travel decisions are made in private rather than in public, the fear of external sanctioning may become less important. Research has further shown that personal norms tend to be strongly associated with cooperation willingness (i.e., to pursue collective rather than personal interests) in large-scale types of social dilemmas, such as for instance commuting decisions (Garvill, 1999; Nordlund & Garvill, 2003; Von Borgstede et al., 1999).

This project found that, once personal norms were controlled for, associations between social norms and intentions to choose eco-friendly travel options were attenuated substantially. That was the case for both social norm types, though the larger decrease in association strength was reported for injunctive norms. Actually, the association between injunctive social norms and behavioural intentions was nonsignificant after adding personal norms to the model. This is congruent with studies that reported similar findings for the willingness to behave in an environmentally responsible fashion whilst diving (Ong & Musa, 2011) and for the willingness to pay for environmental conservation in public spaces (López-Mosquera et al., 2014). Furthermore, the reported pattern of results falls in line with studies that looked at everyday life behaviours such as recycling or organic food purchases (Thøgersen & Ölander, 2006; Thøgersen, 2009).

Further analyses of the data suggested that personal norms mediate the association between injunctive social norms and behavioural intentions.⁷ This, when put together

⁷ An alternative explanation is that people make inferences about prevailing social norms on the basis of their own personal norms (Biel & Thøgersen, 2007).

with the results just discussed, can be interpreted as falling in line with the idea that personal norms with respect to pro-environmental behaviour are to some extent derived (and internalised) from perceptions about what important referents expect one to do (Biel & Thøgersen, 2007; see also Schwartz, 1977). It also fits with meta-analytical findings that suggest that personal norms are partly (but not exclusively) rooted in perceived social pressures and that personal norms themselves are an important determinant of pro-environmental intentions (Bamberg & Möser, 2007; Klöckner, 2013).

6.1.2 The relevance of social comparison biases

Past research has shown that people strive for behavioural consistency across domains with respect to issues of environmental sustainability (Thøgersen, 2004). One framework that is helpful for understanding and explaining such phenomena is that of cognitive dissonance theory (Festinger, 1957). It assumes that people strive to establish consistency between relevant cognitions (relating to themselves, their behaviour, or their environment), and that inconsistency in this respect causes feelings of discomfort (i.e., cognitive dissonance). Another assumption is that people are motivated to reduce cognitive dissonance, which can be accomplished by applying several strategies. Taking counter-attitudinal behaviour as an example, people can adjust their present behaviour, they can justify their present behaviour by modifying dissonant cognitions, or they can justify their present behaviour by adding new cognitions (see Festinger, 1957). For instance, a person might experience discomfort if he/she does not choose an eco-friendly travel option when he/she considers sustainability issues to be important; he/she might hence use one of the strategies to resolve this. Supporting the value of this framework in an environmental context, recent studies indicate that cognitive dissonance can occur when personal engagement in environmentally harmful activities is not aligned with pre-existing attitudes (Lavergne & Pelletier, 2015; Tanford & Montgomery, 2015).

The findings from this project suggest that people see themselves as holding more positive attitudes about environmental issues in tourism than others, and moreover,

that their own attitudes are aligned with what constitutes a desirable standard (cf. better-than-average effect; Alicke & Govorun, 2005). One may speculate that favourable social comparisons offer a way of justifying individual travel decisions in hindsight, hence reducing cognitive dissonance induced by attitude-behaviour inconsistencies (cf. Juvan & Dolnicar, 2014b). Such an assertion follows research that found that people generally wish to avoid cognitive dissonance in the environmental domain (Tanford & Montgomery, 2015; Thøgersen, 2004) and that they have various strategies at their disposal for dealing with possible dissonance experienced in the aftermath of a travel decision (e.g., when choosing one resort over another; Tanford & Montgomery, 2015).

Support for this view comes from Juvan and Dolnicar (2014b) who interviewed a group of tourists who were members of environmental organisations at home. The group was aware that their vacation behaviour did not match their otherwise pro-environmental beliefs, which made them admit “to feeling a tension between their attitudes towards the environment and its protection and their vacation behaviour” (p. 91). One explanation that was identified as a justification for belief-behaviour discrepancies was to point out that other tourists often do even less for the environment or that other industries have a much larger environmental impact than tourism. Juvan et al. (2016) also found support for the results reported in the aforementioned study within the more general population, with people expressing a variety of justifications for behaving in environmentally harmful ways as part of their vacation, including those just described.

Such findings, along with the present project’s findings, can be interpreted as support for the view that favourable social comparisons help people deal with attitude-behaviour inconsistencies. Such a strategy could have its merits for individual tourists in allowing them to resolve cognitive dissonance when changing their behaviour is not possible (e.g., because it lies in the past) and when changing their behaviour is inconvenient (e.g., because it is more expensive). Research shows that cognitive restructuring (e.g., via rationalisation) can be an effective means for dealing with

cognitive dissonance when counter-environmental behaviour does not result in aversive outcomes on a personal level (Lavergne & Pelletier, 2015).

Moreover, tendencies to see oneself as more environmentally concerned than other tourists might have behavioural implications as well (see Chapter 3.2.1). It is possible that favourable social comparisons lower expectations that others will act on behalf of the environment, a factor that in turn has been found to correlate with self-reported past eco-friendly buying behaviour (see Gupta & Ogden, 2009). Evidence for this point comes from research that found that people are more likely to expect cooperation from other group members when perceived attitude similarity is high rather than low (Kaufmann, 1967; Tornatzky & Geiwitz, 1968). More evidence comes from White and Plous (1995), who investigated social comparison regarding various societal problems including environmental aspects. There, participants tended to judge themselves as more environmentally concerned and to show more environmental activism than their peers. Also, and most telling for the present discussion, the majority stated that they would do more to protect the environment if other people displayed more concern.

6.1.3 The relevance of social comparison feedback

One study (Study 1, Paper III) found that social comparison feedback can affect intentions to make eco-friendly travel choices but only in certain cases. A closer look at the findings revealed that feedback effects not only varied as a function of in-group identification but were actually limited to participants with high in-group identification. Participants who were told that they were doing worse (vs. similar) compared with the performance of an average reference group member were more likely to intend to make eco-friendly travel choices on their next trip, given that in-group identification was high. This fits past research where the extent to which a person identified with the reference group affected their responses to social comparison feedback (see Rabinovich & Morton, 2012). It is also aligned with literature that has shown that people are more inclined to adhere to group norms when

such norms convey information relating to an in-group rather than to an out-group (Smith & Louis, 2008; K. M. White et al., 2009).

Another study (Study 2, Paper III) was conducted to follow up on these results, and furthermore, to consider feedback that favoured one's own performance relative to that of an average reference group member. This study was informed by research suggesting that there are circumstances in which people might lessen their environmental engagement after receiving social comparison feedback, that is, when it indicates that the recipient is currently doing more for the environment than what is standard in the reference group (see Schultz et al., 2007). It was found that participants did not alter their behavioural intentions in response to receiving either one of the two types of discrepant (vs. non-discrepant) feedback and that similar observations could be made for participants with varying levels of in-group identification. This raises the question of: What might prevent social comparison feedback from having an effect in the studied context? And on a related note, it inspires the question: What might explain the mixed pattern of results found in this project?

Before answering questions about environmentally relevant aspects in people's lives, participants were informed that these answers would help estimate their personal ecological footprint. It was intended to resemble assessment modes that are common in online calculators that are designed to estimate the environmental impact of one's lifestyle (for a critical review of currently available carbon calculators, see Filimonau, 2012). The idea behind this procedure was that it would benefit the ecological validity of the findings. Recently, an investigation by Juvan and Dolnicar (2014a) cast doubts on whether currently available carbon calculators can assist in promoting low carbon travelling in the tourism domain. Whereas most participants viewed the presented information derived from such sources as credible or highly credible, negative footprint results were still often justified by raising doubts about the credibility of the calculation process, most notably the lack of categories included in the assessment battery and the extent to which the results varied across different calculators.

What stood out from the findings in this project was that participants expressed only moderate levels of perceived trustworthiness when considering the feedback that was presented to them. This implies that the mode by which online calculators (such as applied in this project) provide feedback on the environmental impact of different lifestyles might need to be revisited. The underlying reasoning is that a perceived lack of credibility can weaken the behavioural impact of normative messages (D. T. Miller & Prentice, 2016). The fact that participants were aware that the presented information was part of a scientific inquiry might have contributed further to lowering the level of perceived trustworthiness (see also Harries, Rettie, Studley, Burchell, & Chambers, 2013). Whereas this offers an explanation for why exposure to social comparison feedback may fail to produce the desired results, it does not account for the differences found across the two studies. That is, the first study reported an effect despite the lack of comparability in trustworthiness ratings between studies. If anything, these ratings improved marginally after adding five more questions to the assessment battery, which then included an extra category of behaviours that were specifically related to tourism.

An alternative explanation focusses on possible differences in sample characteristics. One cannot rule out the possibility that participants in the second study were less concerned about environmental issues and that this subsequently made them less prone to respond to the feedback. A lack of attitudinal support for the targeted behaviour is one factor that can lessen the behavioural impact of norm-based interventions (D. T. Miller & Prentice, 2016), and there is empirical evidence to support this claim in the context of household energy conservation (Brandon & Lewis, 1999). A suggestion for future research that could build on the findings from this project is to include measures that allow the researcher to control for pre-existing attitudes. This may help to clarify the association between social comparison feedback and indicators of eco-friendly travel choices (see also Toner et al., 2014).

The provision of feedback (e.g., in the form of an ecological footprint) is a means of directing attention towards consequences of the behaviour in question (Abrahamse et al., 2005; Midden, Meter, Weenig, & Zieverink, 1983). One aim of this project was to

examine if perceived efficacy is sensitive to the type of social comparison information conveyed through feedback. It turned out that perceived efficacy concerned with the environmental impact of different travel choices was not altered by the receipt of discrepant (vs. non-discrepant) feedback on one's own ecological footprint or the footprints of others. Exposure to neither unfavourable nor favourable feedback led to changes in self- or collective efficacy. These results are similar to the results of a study that tested the effect of group feedback on energy conservation in the workplace (Carrico & Riemer, 2011). It found that employees receiving monthly figures on the overall energy use of the building increased their conservation behaviours; yet, beliefs that changing group behaviour can prompt reductions in energy use were unrelated to feedback exposure over the course of the intervention.

Research has shown that social comparison feedback (based on an ecological footprint analysis) can affect pro-environmental behaviour and pro-environmental intentions (Brook, 2011; Toner et al., 2014). However, few investigations have explored the mechanisms that might underlie these effects. An exception is Toner and colleagues (2014), who tested whether combining individual with group feedback induces negative emotions (e.g., shame, guilt) and whether this explains effects on pro-environmental intentions. Such intentions were indeed sensitive to the sort of social comparison information that was conveyed, with the strongest intentions reported for feedback indicating an ecological footprint that was worse than that of an average reference group member. However, this effect was not mediated by negative emotions. There is still abundant room for progress in exploring the roles of emotions for responses to social comparison feedback. For example, it has been argued that emotions such as guilt and shame are susceptible to influences by social comparison when behaviour is public (D. T. Miller & Prentice, 2016). This was not the case in the study by Toner et al. (2014), in which the feedback was provided individually whilst participants sat in front of a computer. Furthermore, research has shown that people become more engaged in seeking information about their current consumption patterns when individual feedback is combined with group feedback, compared with when they receive only the former (Harries et al., 2013).

6.2 Methodological considerations

This project applied between-subjects measures to study social comparison pertaining to environmental issues in tourism (see Chapter 4.1.2). Participants answered questions that were concerned with either themselves or with other tourists. It was assumed that possible differences in this regard could serve as an indication of social comparison biases on the individual level (see Paper I). Results were similar to a study that used within-subjects measures, in which the same participants answered questions about themselves and other tourists (Doran et al., 2015). Future studies are needed to determine whether the magnitude of perceived differences between oneself and other tourists varies in relation to the measures applied.

When surveys include questions about sensitive topics, participants may alter their responses in a way that they think is in line with what is expected of them (i.e., social desirability response bias; Krosnick, 1999). It has been argued that self-reported information from tourists can be prone to this sort of response pattern (e.g., Budeanu, 2007; Juvan & Dolnicar, 2014b). Including measures for assessing tendencies towards responding in the above-described way would have provided an opportunity to screen for these tendencies, and in this way, improve confidence in the findings.

Some measures could have introduced common method bias or variance that belonged to the measurement method instead of to the constructs (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For instance, items employed to measure perceived norms and behavioural intentions were all based on 7-point answer scales. Data that contain common method bias can lead researchers to draw incorrect conclusions about the associations found between constructs (Dolnicar, Coltman, & Sharma, 2015). Forthcoming studies are encouraged to include more diverse types of measures (e.g., semantic differential) as this can reduce the likelihood of introducing common method bias into the data (see Podsakoff et al., 2003).

Travel choices were conceptualised in terms of the possible conflict between personal and collective interests (e.g., saving money vs. reducing environmental impacts). This

was done in accordance with studies suggesting that a lack of willingness to make personal sacrifices might hinder people from choosing eco-friendly tourism alternatives (Hedlund, 2011; Rahman & Reynolds, 2016). It was a shortcoming in this project that item formulations were kept rather broad, focussing on the above-described conflict thereof. Future studies could explore whether the detected associations are stable across behavioural domains (e.g., high-cost behaviour vs. low-cost behaviour).

Behavioural intentions are considered to be a major determinant of actual behaviour (see Ajzen, 1991), with moderate correlations being reported between pro-environmental intentions and subsequent behaviours (Bamberg & Möser, 2007). Including measures of actual behaviour rather than intentions (e.g., through self-reports of past travel decisions) would have strengthened the practical value of the findings for stakeholders in the tourism sector. This echoes recent debates in the literature, which have called into question the validity of intentions as a predictor of future travel decisions (see e.g., Dolnicar et al., 2015).

Convenience sampling was employed to recruit participants for the studies for reasons of cost-effectiveness. This allowed us to collect self-reported information from a relatively large number of individuals, and the response rate for completed questionnaires was deemed acceptable (approximately 80%). At the same time, convenience sampling limits the degree to which the findings of this project can be generalised to populations other than those in the respective studies.

The fact that the participants are not representative of a wider population is albeit one limitation of the sampling procedures that were applied. It is likely that participants differed in their language proficiency, given that some of the study samples were quite heterogeneous in terms of self-reported nationality. This concerns Papers I and II. With the exception of Paper I, where the German language was optional in one study, the questionnaires were presented in the English language. Future studies might overcome this limitation by administering the questionnaires in the participants' respective first language.

A final comment is that the two studies reported in Paper III could have been underpowered given that the number of participants in each feedback condition was moderate. It is recommended that future studies on the associations addressed in this project rely on larger sample sizes. Past research employing social influence approaches in the domain of energy conservation (including social comparison feedback) has reported effects that were small to medium in size (see Abrahamse & Steg, 2013).

6.3 Implications

6.3.1 Theoretical implications

People who believed strongly (vs. weakly) that important referents themselves tend to choose eco-friendly travel options were more likely to express strong intentions in this regard. These perceptions remained associated with behavioural intentions, even after personal norms were controlled for, a finding that is in line with other research (Thøgersen, 2006). Thøgersen (2006) speculated that associations between environmentally responsible behaviour and injunctive social norms may often be spurious in the sense that the latter can reflect assumptions about the behaviour expressed by other people or internalised personal norms. The present project indeed found that there was a substantial correlation between descriptive and injunctive social norms, thus falling in line with this interpretation.

Personal norms explained sizeable parts of the variance in intentions to choose eco-friendly travel options, and this still held when social norms were controlled for. It is possible that a more refined assessment would have provided further insights. Thøgersen (2006) proposed that there are two personal norm types that vary in the degree to which they are internalised or integrated into the self-concept, and in terms of their motivational implications. One type internalises superficially, which he termed introjected norms, and another type becomes (partly or fully) integrated into a person's self-concept, which he termed integrated norms. The former motivates behaviour via the anticipation of guilt and pride, but the latter does not require

enforcement in such way in order to motivate behaviour (Thøgersen, 2006). When considering personal norms in an environmental context, more research is needed to scrutinise the proposed subdivision, and if the subdivision is found to hold, to explore the relative importance of the two types in explaining individual travel decisions. Only a few studies have done so, and the empirical evidence has been mixed (Nayum & Klöckner, 2014; Thøgersen, 2006).

One challenge for promoting individual contributions in large-scale social dilemmas are high degrees of environmental and social uncertainty (Von Borgstede et al., 2013). Air travel decisions can serve as an example because personal efforts to reduce CO₂ emissions (e.g., by boycotting long-haul flights) will have little impact if other people do not join in. Research from domains other than tourism has indicated that people are more willing to show environmental engagement when they believe that others are contributing their share as well (Garvill, 1999; Gupta & Ogden, 2009; Wiener & Doescher, 1994). The more they expect others to act to reduce negative environmental impacts, the more willing they are to engage in actions that are meant to achieve this goal (e.g., by reducing personal car use; Garvill, 1999). The current project did not intend to address potential correlates of social comparison biases. But as discussed earlier, people may be less likely to expect others to make an effort to reduce environmental impacts from holidaymaking if they perceive that these people hold dissimilar attitudes. On the other hand, people who perceive others as sharing similar attitudes may be more likely to expect them to make the respective efforts.⁸

The results concerning social comparison feedback were mixed, which makes it difficult to draw conclusions about its potential relevance for individual travel decisions. Still, some issues emerged. First, online calculators were employed to

⁸ One study explored correlates of social comparison biases in the tourism domain (Doran et al., 2015). Congruent with findings from the present project, Doran et al. found that people had a tendency to perceive themselves as holding more positive attitudes towards environmental issues than the typical tourist. However, these perceived differences did not contribute to explaining a willingness to pay for environmental protection when personal attitudes and efficacy beliefs were controlled for.

improve the ecological validity of the findings. The fact that participants were allegedly receiving and responding to the feedback in private may have weakened its impact. On a related note, social comparison feedback may have a larger behavioural impact when it includes information from referents that are not anonymous (see Kurz, Donaghue, & Walker, 2005). Second, the reported studies disclosed information about the ecological footprint of an average student at the local university. Research indicates that the effectiveness of social influence approaches varies in relation to the target group (Abrahamse & Steg, 2013). One may argue that participants perceived a lack of similarity with the reference group, and as a result, that they devaluated the feedback as a relevant source of information. This is consistent with the idea that social comparison information has more self-relevance attached to it when the referent embodies characteristics that are similar to the recipient's (Bandura, 1997; Festinger, 1954). In addition, research has shown that even incidental similarity can make people more compliant with behavioural requests (Burger, Messian, Patel, del Prado, & Anderson, 2004; see also Parks et al., 2001).

6.3.2 Practical implications

There are theoretical reasons to assume that cues about others' behaviour may affect travel choices with environmental implications, but there is empirical support as well. For instance, normative messages have been shown to reduce towel use in hotels when the messages explained that the majority of guests reuse their towels when asked to do so (Goldstein et al., 2008; see also Scheibehenne et al., 2016). Further support that this type of normative messaging can instigate modifications in behaviour comes from studies on public littering, commuting decisions, energy saving, and recycling (Cialdini et al., 1990; Kormos et al., 2015; Schultz et al., 2007; Schultz, 1999). More research is needed to investigate whether exposure to descriptive norm information equally affects travel choices linked to personal sacrifices as well as to identify the conditions needed for this to work.

It is assumed that the likelihood that people will align their own behaviour to the behaviour expressed by social norms depends on the characteristics of the reference

group and on group identification in particular (Abrahamse & Steg, 2013; Keizer & Schultz, 2013). Yet, research is inconclusive at this point. Some research has shown that the effectiveness of normative messages that target conservation behaviour increases as a function of situational resemblance to (Goldstein et al., 2008) or identification with (Smith & Louis, 2008) the reference group. Other research suggests that cues about how most people behave in a comparable situation can facilitate conservation behaviour (e.g., reusing towels in hotels) under the use of specific but also general reference categories (Schultz, Khazian, & Zaleski, 2008). An area for future research is to identify reference categories that are promising targets in tourism settings, for instance, whether using more specific (e.g., staying at the same accommodation) or more general (e.g., visiting the same destination) categories has greater potential to influence individual travel decisions. This may sometimes pose a challenge since tourist's identities are not static, with people gravitating towards and turning away from them depending on the context (see Hibbert et al., 2013).

The norm activation model (Schwartz, 1977) states that, in order to influence the targeted behaviour, personal norms need to be activated in the situation. The basic rationale behind is that this can occur if (a) people are aware that not engaging in the behaviour would cause harm to some valued entity, (b) they can identify the means for preventing the harm from happening, (c) they recognise their own capacity for supplying relief in this regard, and (d) they feel personally responsible for performing the behaviour in question (see Schwartz, 1977).⁹ Moreover, it is assumed that changes along these lines affect a person's felt moral obligation to engage in the respective behaviour, and there is experimental evidence to support this view when applied to an environmental context (see e.g., Steg & De Groot, 2010). Informational campaigns targeted towards promoting choices of eco-friendly rather than conventional travel alternatives could be specifically designed to have such a purpose

⁹ Whether personal norms become activated in the situation further depends on individual receptiveness to cues about the outcomes of own behaviour for others, as well as individual tendencies to deny own responsibility in this regard (Schwartz, 1977; see also Harland et al., 2007).

in mind. For instance, they could inform people about the negative environmental impacts that result from increases in air travel demand, in addition to stressing that it is partly (albeit not completely) the responsibility of individual tourists to help reduce these impacts. Although there is some awareness about the environmental problems associated with enhanced tourism mobility, the belief that tackling these problems is not the responsibility of the individual tourist tends to prevail (Cohen et al., 2013; Hares et al., 2010; Higham, Cohen, et al., 2016; Higham, Reis, et al., 2016; Kroesen, 2013).

The current project's results complement studies that identified perceived social pressures from important referents as an antecedent of personal norms in tourism settings. These studies found that personal norms were associated with problem awareness and ascriptions of responsibility but also with perceived social pressures to act accordingly (Han et al., 2015, 2016). Granted that the presumed causal path is supported by experimental studies, these findings provide several insights for practitioners and researchers alike. First, normative messages that indicate strong social approval of considering ways to reduce the negative impacts from tourism on the environment (e.g., communicated via informational campaigns) might nurture the development of personal norms and ultimately the acceptance of making personal sacrifices for the environment. Second, personal norms might help people maintain eco-friendly travel practices in situations where problematic conduct is frequent. This is based on research that has shown that people with strong moral convictions for engaging in conservation behaviour are less affected by normative cues in this regard (Schultz et al., 2016).

Online calculators that offer the chance to generate feedback on the environmental impact of holiday travel have received increasing attention (Filimonau, 2012; Juvan & Dolnicar, 2014a). If recipients are genuinely interested in reducing the negative environmental impact of their holidays, the potential gain from making these calculators available is that they can empower informed travel decisions (Juvan & Dolnicar, 2014a). For example, people could be informed about the estimated environmental impact of their planned long-haul flight (e.g., in the form of CO₂

emissions) before they are given the chance to participate in carbon offsetting schemes. Further research is needed to examine (a) whether making this form of feedback an integral part of online booking tools can promote eco-friendly travel choices, (b) whether its effectiveness varies in relation to the type of information presented (e.g., individual feedback, group feedback, or combined), and finally, (c) the extent to which and how its credibility can be improved. A suggestion for exploring this last issue would be to take the same person's results from more than one calculator and to provide detailed information about the calculation process (see Juvan & Dolnicar, 2014a).

6.4 Ethical considerations

One part of the data was based on self-reported information gathered from paper-and-pencil questionnaires (Papers I and II). It included written information stating: (a) you are invited to participate in a study on travel/tourist experiences by filling out the questionnaire, (b) there are no “right” or “wrong” answers, (c) the researchers are interested in your opinions, and (d) your responses will be kept confidential. This information was also communicated verbally in case participants had questions about the purpose of the research.

Another part of the data was based on self-reported information obtained through an online webpage (Paper III). It disclosed information similar to that of the questionnaires (see above), yet participants were left unaware of the actual purpose of the research. This was due to the design of the two studies. Participants were debriefed, which means that they were informed in detail about what the study was about after they had completed the tasks. The Norwegian Social Science Data Services (NSD) was contacted to ensure that the data collection procedures complied with the national privacy regulations as well as with ethical principles for conducting research.

6.5 Conclusion and directions for future research

Steg and Vlek (2009) identified two types of interventions that could be applied to change environmental behaviour: (a) informational strategies, which target behavioural change by addressing factors such as knowledge, attitudes, and norms (e.g., boosting awareness of the negative impacts of tourism on the environment) and (b) structural strategies, which target behavioural change by altering the context in which these behaviours take place (e.g., reducing the costs of alternative tourism activities that have fewer negative environmental impacts). Research on psychosocial factors that can encourage people to make eco-friendly travel choices or discourage them from making unfriendly choices, as in this project, provides important insights for researchers and practitioners who have an interest in applying the former type of intervention (see Steg & Vlek, 2009).

Growing evidence suggests that informational campaigns that are directed towards increasing public awareness of tourism-related environmental impacts cannot be expected to achieve the desired changes in people's travelling patterns (see Chapter 2.1). A central concern is that these attempts will remain insufficient to change existing behavioural patterns unless they consider the social context in which tourism activities are embedded (e.g., Barr & Prillwitz, 2014; Barr et al., 2011, 2010; Hibbert et al., 2013). As Barr and Prillwitz (2014) stated recently: "within the context of environmentally sustainable mobility, focusing on mobility practices at a scale beyond the individual offers the opportunity to consider the ways in which patterns of mobility are being shaped in everyday life through more than individual social-psychological factors" (p. 13). This project provides a modest contribution to the literature on how social context may affect individual travel decisions and identified the following issues that are in need for further exploration.

First, travel choices were studied explicitly for situations in which people are asked to forgo personal interests (e.g., price, convenience, or time) for the sake of the environment, and the relevance of perceived norms were explored in this regard. Intentions to choose eco-friendly travel options were most strongly associated with

personal norms, suggesting possible theoretical and practical implications (see Chapter 6.3). One shortcoming was that this finding, as well as related findings on the relevance of social norms, was based on cross-sectional data. Consequently, causal interpretations must be made with great caution until experimental research that is able to provide support for the hypothesised causal paths is undertaken.

Second, social comparison biases were studied with respect to one particular domain of interest, namely judgements about one's own and others' attitudes about environmental issues in tourism. It is possible that similar patterns (i.e., viewing oneself in a better light than one views other tourists) will not be found just for attitudes but also with regard to other domains. For instance, one study indicated that people perceive their own knowledge of environmental policies in the hotel sector as greater than the knowledge of others (A. Chen & Peng, 2012). A future research task will be to explore social comparison in relation to other domains of interest (e.g., personal norms) and to study possible relations with individual travel decisions.

Third, when people are informed about their own performances, this information can be enriched with cues about others' performances (see Chapter 3.2.2). This was the basis for considering social comparison feedback as a possible influence on individual travel decisions, but the findings were inconsistent. Future research should look at factors (e.g., reference group characteristics) that could potentially affect the behavioural impact of social comparison feedback and should study its respective impact when framed in an intergroup context (for a demonstration, see Ferguson et al., 2011). Examples of intergroup comparisons in tourism settings are individuals belonging to different nationalities, individuals visiting different destinations, or individuals engaging in different leisure activities. This would offer some additional insights into social comparison as an explanatory variable for individual travel decisions.

Last, factors other than those addressed in this project have been deemed relevant for explaining sustainable tourism behaviour (see Chapter 2.1). For instance, hedonic motives can be an important source of influence on behaviour in tourism settings as

well (e.g., Hindley & Font, 2014; Miao & Wei, 2013). Future research could address several of these factors and compare their relative importance in explaining travel choices that have environmental implications. This is in line with research showing that pro-environmental behaviour can be explained by a mixture of self-interest and pro-social motives (Bamberg & Möser, 2007; Klöckner, 2013). Past research has further established that travel choices are to some extent guided by habits (e.g., Barr et al., 2010; Hares et al., 2010; see also Steg & Vlek, 2009). Forthcoming studies could examine the degree to which individual travel decisions are influenced by established habits (e.g., choosing familiar accommodation) and how these may affect the strength of associations found between the variables addressed in this project.

References

- Abrahamse, W., & Steg, L. (2013). Social influence approaches to encourage resource conservation: A meta-analysis. *Global Environmental Change, 23*, 1773–1785. doi:10.1016/j.gloenvcha.2013.07.029
- Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology, 25*, 273–291. doi:10.1016/j.jenvp.2005.08.002
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: SAGE Publications.
- Aitken, C. K., McMahon, T. A., Wearing, A. J., & Finlayson, B. L. (1994). Residential water use: Predicting and reducing consumption. *Journal of Applied Social Psychology, 24*, 136–158. doi:10.1111/j.1559-1816.1994.tb00562.x
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179–211. doi:10.1016/0749-5978(91)90020-T
- Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. In M. D. Alicke, D. A. Dunning, & J. I. Krueger (Eds.), *The self in social judgment* (Vol. 45, pp. 85–106). New York, NY: Psychology Press.
- Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics, 95*, 1082–1095. doi:10.1016/j.jpubeco.2011.03.003
- Anable, J., Lane, B., & Kelay, T. (2006). *An evidence base review of public attitudes to climate change and transport behaviour*. London, UK: Department for Transport.
- Araña, J. E., & León, C. J. (2016). Are tourists animal spirits? Evidence from a field experiment exploring the use of non-market based interventions advocating sustainable tourism. *Journal of Sustainable Tourism, 24*, 430–445. doi:10.1080/09669582.2015.1101128
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63*, 596–612. doi:10.1037/0022-3514.63.4.596
- Bamberg, S., Hunecke, M., & Blöbaum, A. (2007). Social context, personal norms and the use of public transportation: Two field studies. *Journal of Environmental Psychology, 27*, 190–203. doi:10.1016/j.jenvp.2007.04.001
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology, 27*, 14–25. doi:10.1016/j.jenvp.2006.12.002
- Bamberg, S., Rees, J., & Seebauer, S. (2015). Collective climate action: Determinants of participation intention in community-based pro-environmental initiatives. *Journal of Environmental Psychology, 43*, 155–165.

doi:10.1016/j.jenvp.2015.06.006

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.
- Barr, S., & Prillwitz, J. (2014). A smarter choice? Exploring the behaviour change agenda for environmentally sustainable mobility. *Environment and Planning C: Government and Policy*, *32*, 1–19. doi:10.1068/c1201
- Barr, S., Shaw, G., & Coles, T. (2011). Times for (Un)sustainability? Challenges and opportunities for developing behaviour change policy. A case-study of consumers at home and away. *Global Environmental Change*, *21*, 1234–1244. doi:10.1016/j.gloenvcha.2011.07.011
- Barr, S., Shaw, G., Coles, T., & Prillwitz, J. (2010). “A holiday is a holiday”: Practicing sustainability, home and away. *Journal of Transport Geography*, *18*, 474–481. doi:10.1016/j.jtrangeo.2009.08.007
- Barth, M., Jugert, P., & Fritsche, I. (2016). Still underdetected – Social norms and collective efficacy predict the acceptance of electric vehicles in Germany. *Transportation Research Part F: Traffic Psychology and Behaviour*, *37*, 64–77. doi:10.1016/j.trf.2015.11.011
- Bator, R. J., Tabanico, J. J., Walton, M. L., & Schultz, P. W. (2014). Promoting energy conservation with implied norms and explicit messages. *Social Influence*, *9*, 69–82. doi:10.1080/15534510.2013.778213
- Becken, S. (2004). How tourists and tourism experts perceive climate change and carbon-offsetting schemes. *Journal of Sustainable Tourism*, *12*, 332–345. doi:10.1080/09669580408667241
- Biel, A., Eek, D., & Gärling, T. (1997). Distributive justice and willingness to pay for municipality child care. *Social Justice Research*, *10*, 63–80. doi:10.1007/s11211-997-0013-4
- Biel, A., & Gärling, T. (1995). The role of uncertainty in resource dilemmas. *Journal of Environmental Psychology*, *15*, 221–233. doi:10.1016/0272-4944(95)90005-5
- Biel, A., & Thøgersen, J. (2007). Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behaviour. *Journal of Economic Psychology*, *28*, 93–112. doi:10.1016/j.joep.2006.03.003
- Bohner, G., & Schlüter, L. E. (2014). A room with a viewpoint revisited: Descriptive norms and hotel guests’ towel reuse behavior. *PLoS One*, *9*, 1-7. doi:10.1371/journal.pone.0104086
- Bonniface, L., & Henley, N. (2008). “A drop in the bucket”: Collective efficacy perceptions and environmental behaviour. *Australian Journal of Social Issues*, *43*(3), 345–358.
- Brandon, G., & Lewis, A. (1999). Reducing household energy consumption: A qualitative and quantitative field study. *Journal of Environmental Psychology*, *19*, 75–85. doi:10.1006/jevp.1998.0105

- Brook, A. (2011). Ecological footprint feedback: Motivating or discouraging? *Social Influence*, 6, 113–128. doi:10.1080/15534510.2011.566801
- Brown, T. J., Ham, S. H., & Hughes, M. (2010). Picking up litter: An application of theory-based communication to influence tourist behaviour in protected areas. *Journal of Sustainable Tourism*, 18, 879–900. doi:10.1080/09669581003721281
- Budeanu, A. (2007). Sustainable tourist behaviour - a discussion of opportunities for change. *International Journal of Consumer Studies*, 31, 499–508. doi:10.1111/j.1470-6431.2007.00606.x
- Burger, J. M., Messian, N., Patel, S., del Prado, A., & Anderson, C. (2004). What a coincidence! The effects of incidental similarity on compliance. *Personality and Social Psychology Bulletin*, 30, 35–43. doi:10.1177/0146167203258838
- Buunk, A. P., & Gibbons, F. X. (2006). Social comparison orientation: A new perspective on those who do and those who don't compare with others. In S. Guimond (Ed.), *Social Comparison and social psychology: Understanding cognition, intergroup relations and culture* (pp. 15–32). Cambridge, UK: Cambridge University Press.
- Buunk, A. P., & Gibbons, F. X. (2007). Social comparison: The end of a theory and the emergence of a field. *Organizational Behavior and Human Decision Processes*, 102, 3–21. doi:10.1016/j.obhdp.2006.09.007
- Carrico, A. R., & Riemer, M. (2011). Motivating energy conservation in the workplace: An evaluation of the use of group-level feedback and peer education. *Journal of Environmental Psychology*, 31, 1–13. doi:10.1016/j.jenvp.2010.11.004
- Chambers, J. R., & Windschitl, P. D. (2004). Biases in social comparative judgments: The role of nonmotivated factors in above-average and comparative-optimism effects. *Psychological Bulletin*, 130, 813–838. doi:10.1037/0033-2909.130.5.813
- Chen, A., & Peng, N. (2012). Green hotel knowledge and tourists' staying behavior. *Annals of Tourism Research*, 39, 2211–2216. doi:10.1016/j.annals.2012.07.003
- Chen, M.-F. (2015). Self-efficacy or collective efficacy within the cognitive theory of stress model: Which more effectively explains people's self-reported proenvironmental behavior? *Journal of Environmental Psychology*, 42, 66–75. doi:10.1016/j.jenvp.2015.02.002
- Chiu, Y.-T. H., Lee, W.-I., & Chen, T.-H. (2014). Environmentally responsible behavior in ecotourism: Antecedents and implications. *Tourism Management*, 40, 321–329. doi:10.1016/j.tourman.2013.06.013
- Choi, H., Jang, J., & Kandampully, J. (2015). Application of the extended VBN theory to understand consumers' decisions about green hotels. *International Journal of Hospitality Management*, 51, 87–95. doi:10.1016/j.ijhm.2015.08.004
- Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12, 105–109. doi:10.1111/1467-8721.01242

-
- Cialdini, R. B. (2007). Descriptive social norms as underappreciated sources of social control. *Psychometrika*, *72*, 263–268. doi:10.1007/s11336-006-1560-6
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*, 1015–1026. doi:10.1037//0022-3514.58.6.1015
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity, and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 151–192). New York, NY: McGraw-Hill.
- Cohen, S. A., & Higham, J. E. S. (2011). Eyes wide shut? UK consumer perceptions on aviation climate impacts and travel decisions to New Zealand. *Current Issues in Tourism*, *14*, 323–335. doi:10.1080/13683501003653387
- Cohen, S. A., Higham, J. E. S., & Reis, A. C. (2013). Sociological barriers to developing sustainable discretionary air travel behaviour. *Journal of Sustainable Tourism*, *21*, 982–998. doi:10.1080/09669582.2013.809092
- Dawes, R. M., & Messick, D. M. (2000). Social dilemmas. *International Journal of Psychology*, *35*, 111–116. doi:10.1080/002075900399402
- De Cremer, D. (1999). Trust and fear of exploitation in a public goods dilemma. *Current Psychology*, *18*, 153–163. doi:10.1007/s12144-999-1024-0
- De Cremer, D., & Van Vugt, M. (1999). Social identification effects in social dilemmas: A transformation of motives. *European Journal of Social Psychology*, *29*, 871–893. doi:10.1002/(SICI)1099-0992(199911)29:7<871::AID-EJSP962>3.0.CO;2-I
- De Groot, J. I. M., Abrahamse, W., & Jones, K. (2013). Persuasive normative messages: The influence of injunctive and personal norms on using free plastic bags. *Sustainability*, *5*, 1829–1844. doi:10.3390/su5051829
- De Groot, J. I. M., & Schuitema, G. (2012). How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies. *Environmental Science & Policy*, *19-20*, 100–107. doi:10.1016/j.envsci.2012.03.004
- Dixon, G. N., Deline, M. B., McComas, K., Chambliss, L., & Hoffmann, M. (2015). Using comparative feedback to influence workplace energy conservation: A case study of a university campaign. *Environment and Behavior*, *47*, 667–693. doi:10.1177/0013916513520417
- Dolnicar, S. (2010). Identifying tourists with smaller environmental footprints. *Journal of Sustainable Tourism*, *18*, 717–734. doi:10.1080/09669581003668516
- Dolnicar, S., Coltman, T., & Sharma, R. (2015). Do satisfied tourists really intend to come back? Three concerns with empirical studies of the link between satisfaction and behavioral intention. *Journal of Travel Research*, *54*, 152–178. doi:10.1177/0047287513513167

-
- Dolnicar, S., Crouch, G. I., & Long, P. (2008). Environment-friendly tourists: What do we really know about them? *Journal of Sustainable Tourism, 16*, 197–210. doi:10.2167/jost738.0
- Dolnicar, S., & Grün, B. (2009). Environmentally friendly behavior: Can heterogeneity among individuals and contexts/ environments be harvested for improved sustainable management? *Environment and Behavior, 41*, 693–714. doi:10.1177/0013916508319448
- Dolnicar, S., & Leisch, F. (2008). An investigation of tourists' patterns of obligation to protect the environment. *Journal of Travel Research, 46*, 381–391. doi:10.1177/0047287507308330
- Doran, R., Hanss, D., & Larsen, S. (2015). Attitudes, efficacy beliefs, and willingness to pay for environmental protection when travelling. *Tourism and Hospitality Research, 15*, 281–292. doi:10.1177/1467358415580360
- Doran, R., Hanss, D., & Larsen, S. (2016). Intentions to make sustainable tourism choices: Do value orientations, time perspective, and efficacy beliefs explain individual differences? *Scandinavian Journal of Hospitality and Tourism*. Advance online publication. doi:10.1080/15022250.2016.1179129
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt, Brace, Jovanovich.
- Ellen, P. S., Wiener, J. L., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing, 10*(2), 102–117.
- Ferguson, M. A., Branscombe, N. R., & Reynolds, K. J. (2011). The effect of intergroup comparison on willingness to perform sustainable behavior. *Journal of Environmental Psychology, 31*, 275–281. doi:10.1016/j.jenvp.2011.04.001
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117–140. doi:10.1177/001872675400700202
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Field, A. (2013). *Discovering statistics using IBM SPSS Statistics* (4th ed.). London, UK: SAGE Publications.
- Filimonau, V. (2012). Carbon calculators as a tool for carbon impact appraisal of holiday travel: A critical review. *Worldwide Hospitality and Tourism Themes, 4*, 302–331. doi:10.1108/17554211211255675
- Garvill, J. (1999). Choice of transportation mode: Factors influencing drivers' willingness to reduce personal car use and support car regulations. In M. Foddy, M. Smithson, S. Schneider, & M. Hogg (Eds.), *Resolving social dilemmas: Dynamic, structural, and intergroup aspects* (pp. 263–279). Philadelphia, PA: Psychology Press.
- Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality*

-
- and Social Psychology*, 76, 129–142. doi: 10.1037/0022-3514.76.1.129
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66, 290–302. doi:10.1037/a0023566
- Gilbert, D. T., Giesler, R. B., & Morris, K. A. (1995). When comparisons arise. *Journal of Personality and Social Psychology*, 69, 227–236. doi:10.1037/0022-3514.69.2.227
- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35, 472–482. doi:10.1086/586910
- Graffeo, M., Ritov, I., Bonini, N., & Hadjichristidis, C. (2015). To make people save energy tell them what others do but also who they are: a preliminary study. *Frontiers in Psychology*, 6, 1-9. doi:10.3389/fpsyg.2015.01287
- Gupta, S., & Ogden, D. T. (2009). To buy or not to buy? A social dilemma perspective on green buying. *Journal of Consumer Marketing*, 26, 376–391. doi:10.1108/07363760910988201
- Gössling, S., Hall, C. M., Peeters, P., & Scott, D. (2010). The future of tourism: Can tourism growth and climate policy be reconciled? A climate change mitigation perspective. *Tourism Recreation Research*, 35, 119–130. doi:10.1080/02508281.2010.11081628
- Gössling, S., & Peeters, P. (2015). Assessing tourism's global environmental impact 1900-2050. *Journal of Sustainable Tourism*, 23, 639–659. doi:10.1080/09669582.2015.1008500
- Hall, C. M. (2013). Framing behavioural approaches to understanding and governing sustainable tourism consumption: Beyond neoliberalism, “nudging” and “green growth”? *Journal of Sustainable Tourism*, 21, 1091–1109. doi:10.1080/09669582.2013.815764
- Hall, C. M., Gössling, S., & Scott, D. (2015). Tourism and sustainability: An introduction. In C. M. Hall, S. Gössling, & D. Scott (Eds.), *The Routledge Handbook of Tourism and the Environment* (pp. 1–11). New York, NY: Routledge.
- Hamann, K. R. S., Reese, G., Seewald, D., & Loeschinger, D. C. (2015). Affixing the theory of normative conduct (to your mailbox): Injunctive and descriptive norms as predictors of anti-ads sticker use. *Journal of Environmental Psychology*, 44, 1–9. doi:10.1016/j.jenvp.2015.08.003
- Han, H., Hwang, J., Kim, J., & Jung, H. (2015). Guests' pro-environmental decision-making process: Broadening the norm activation framework in a lodging context. *International Journal of Hospitality Management*, 47, 96–107. doi:10.1016/j.ijhm.2015.03.013
- Han, H., Jae, M., & Hwang, J. (2016). Cruise travelers' environmentally responsible decision-making: An integrative framework of goal-directed behavior and norm

- activation process. *International Journal of Hospitality Management*, 53, 94–105. doi:10.1016/j.ijhm.2015.12.005
- Hanss, D., & Böhm, G. (2010). Can I make a difference? The role of general and domain-specific self-efficacy in sustainable consumption decisions. *Umweltpsychologie*, 14, 46–74.
- Hanss, D., Böhm, G., Doran, R., & Homburg, A. (2016). Sustainable consumption of groceries: The importance of believing that one can contribute to sustainable development. *Sustainable Development*. Advance online publication. doi:10.1002/sd.1615
- Hares, A., Dickinson, J., & Wilkes, K. (2010). Climate change and the air travel decisions of UK tourists. *Journal of Transport Geography*, 18, 466–473. doi:10.1016/j.jtrangeo.2009.06.018
- Harland, P., Staats, H., & Wilke, H. A. M. (2007). Situational and personality factors as direct or personal norm mediated predictors of pro-environmental behavior: Questions derived from norm-activation theory. *Basic and Applied Social Psychology*, 29, 323–334. doi:10.1080/01973530701665058
- Harries, T., Rettie, R., Studley, M., Burchell, K., & Chambers, S. (2013). Is social norms marketing effective?: A case study in domestic electricity consumption. *European Journal of Marketing*, 47, 1458–1475. doi:10.1108/EJM-10-2011-0568
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408–420. doi:10.1080/03637750903310360
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.
- Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science*, 24, 1918–1927. doi:10.1177/0956797613480187
- Hedlund, T. (2011). The impact of values, environmental concern, and willingness to accept economic sacrifices to protect the environment on tourists' intentions to buy ecologically sustainable tourism alternatives. *Tourism and Hospitality Research*, 11, 278–288. doi:10.1177/1467358411423330
- Hedlund, T., Marell, A., & Gärling, T. (2012). The mediating effect of value orientation on the relationship between socio-demographic factors and environmental concern in Swedish tourists' vacation choices. *Journal of Ecotourism*, 11, 16–33. doi:10.1080/14724049.2011.626859
- Hibbert, J. F., Dickinson, J. E., Gössling, S., & Curtin, S. (2013). Identity and tourism mobility: An exploration of the attitude–behaviour gap. *Journal of Sustainable Tourism*, 21, 999–1016. doi:10.1080/09669582.2013.826232
- Higham, J., Cohen, S. A., Cavaliere, C. T., Reis, A., & Finkler, W. (2016). Climate change, tourist air travel and radical emissions reduction. *Journal of Cleaner*

-
- Production*, 111, 336–347. doi:10.1016/j.jclepro.2014.10.100
- Higham, J. E. S., & Cohen, S. A. (2011). Canary in the coalmine: Norwegian attitudes towards climate change and extreme long-haul air travel to Aotearoa/New Zealand. *Tourism Management*, 32, 98–105. doi:10.1016/j.tourman.2010.04.005
- Higham, J. E. S., Cohen, S. A., & Cavaliere, C. T. (2014). Climate change, discretionary air travel, and the “flyers’ dilemma.” *Journal of Travel Research*, 53, 462–475. doi:10.1177/0047287513500393
- Higham, J., Reis, A., & Cohen, S. A. (2016). Australian climate concern and the “attitude–behaviour gap.” *Current Issues in Tourism*, 19, 338–354. doi:10.1080/13683500.2014.1002456
- Hindley, A., & Font, X. (2014). Ethics and influences in tourist perceptions of climate change. *Current Issues in Tourism*. Advance online publication. doi:10.1080/13683500.2014.946477
- Holloway, D., & Green, L. (2011). The intratourist gaze: Grey nomads and “other tourists.” *Tourist Studies*, 11, 235–252. doi:10.1177/1468797611432043
- Homburg, A., & Stolberg, A. (2006). Explaining pro-environmental behavior with a cognitive theory of stress. *Journal of Environmental Psychology*, 26, 1–14. doi:10.1016/j.jenvp.2006.03.003
- IPCC. (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]*. Geneva, Switzerland: IPCC.
- Jiménez-Castillo, D., & Ortega-Egea, J. M. (2015). Too positive to change? Examining optimism bias as a barrier to media effects on environmental activism. *Journal of Environmental Psychology*, 43, 216–225. doi:10.1016/j.jenvp.2015.07.004
- Juvan, E., & Dolnicar, S. (2014a). Can tourists easily choose a low carbon footprint vacation? *Journal of Sustainable Tourism*, 22, 175–194. doi:10.1080/09669582.2013.826230
- Juvan, E., & Dolnicar, S. (2014b). The attitude–behaviour gap in sustainable tourism. *Annals of Tourism Research*, 48, 76–95. doi:10.1016/j.annals.2014.05.012
- Juvan, E., Ring, A., Leisch, F., & Dolnicar, S. (2016). Tourist segments’ justifications for behaving in an environmentally unsustainable way. *Journal of Sustainable Tourism*. Advance online publication. doi:10.1080/09669582.2015.1136635
- Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct: When norms do and do not affect behavior. *Personality and Social Psychology Bulletin*, 26, 1002–1012. doi:10.1177/01461672002610009
- Kaufmann, H. (1967). Similarity and cooperation received as determinants of cooperation rendered. *Psychonomic Science*, 9, 73–74. doi:10.3758/BF03330765

- Keizer, K., & Schultz, P. W. (2013). Social norms and pro-environmental behaviour. In L. Steg, A. Van den Berg, & J. De Groot (Eds.), *Environmental Psychology: An introduction* (pp. 153–163). Chichester, UK: Wiley-Blackwell.
- Kerr, N. L. (1989). Illusions of efficacy: The effects of group size on perceived efficacy in social dilemmas. *Journal of Experimental Social Psychology, 25*, 287–313. doi:10.1016/0022-1031(89)90024-3
- Kerr, N. L. (1992). Efficacy as a causal and moderating variable in social dilemmas. In W. B. G. Liebrand, D. M. Messick, & H. A. M. Wilke (Eds.), *Social dilemmas: Theoretical issues and research findings* (pp. 59–80). Oxford, UK: Pergamon Press.
- Kerr, N. L. (1996). “Does my contribution really matter?”: Efficacy in social dilemmas. *European Review of Social Psychology, 7*, 209–240. doi:10.1080/14792779643000029
- Kerr, N. L., & Kaufman-Gilliland, C. M. (1994). Communication, commitment, and cooperation in social dilemma. *Journal of Personality and Social Psychology, 66*, 513–529. doi:10.1037/0022-3514.66.3.513
- Klößner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour - A meta-analysis. *Global Environmental Change, 23*, 1028–1038. doi:10.1016/j.gloenvcha.2013.05.014
- Kollock, P. (1998). Social dilemmas: The anatomy of cooperation. *Annual Review of Sociology, 24*, 183–214. doi:10.1146/annurev.soc.24.1.183
- Kormos, C., Gifford, R., & Brown, E. (2015). The influence of descriptive social norm information on sustainable transportation behavior: A field experiment. *Environment and Behavior, 47*, 479–501. doi:10.1177/0013916513520416
- Kroesen, M. (2013). Exploring people’s viewpoints on air travel and climate change: understanding inconsistencies. *Journal of Sustainable Tourism, 21*, 271–290. doi:10.1080/09669582.2012.692686
- Krosnick, J. A. (1999). Maximizing questionnaire quality. In J. P. Robison, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of Political Attitudes* (pp. 37–57). San Diego, CA: Academic.
- Kurz, T., Donaghue, N., & Walker, I. (2005). Utilizing a social-ecological framework to promote water and energy conservation: A field experiment. *Journal of Applied Social Psychology, 35*, 1281–1300. doi:10.1111/j.1559-1816.2005.tb02171.x
- Lapinski, M. K., & Rimal, R. N. (2005). An explication of social norms. *Communication Theory, 15*, 127–147. doi:10.1093/ct/15.2.127
- Larsen, S., & Brun, W. (2011). “I am not at risk - typical tourists are”! Social comparison of risk in tourists. *Perspectives in Public Health, 131*, 275–279. doi:10.1177/1757913911419898
- Lavergne, K. J., & Pelletier, L. G. (2015). Predicting individual differences in the choice of strategy to compensate for attitude-behaviour inconsistencies in the

-
- environmental domain. *Journal of Environmental Psychology*, *44*, 135–148. doi:10.1016/j.jenvp.2015.10.001
- Leary, M. R., Toner, K., & Gan, M. (2011). Self, identity, and reactions to distal threats: The case of environmental behavior. *Psychological Studies*, *56*, 159–166. doi:10.1007/s12646-011-0060-7
- López-Mosquera, N., García, T., & Barrera, R. (2014). An extension of the Theory of Planned Behavior to predict willingness to pay for the conservation of an urban park. *Journal of Environmental Management*, *135*, 91–99. doi:10.1016/j.jenvman.2014.01.019
- Luo, Y., & Deng, J. (2007). The new environmental paradigm and nature-based tourism motivation. *Journal of Travel Research*, *46*, 392–402. doi:10.1177/0047287507308331
- Luzecka, P. (2016). “Take a gap year!” A social practice perspective on air travel and potential transitions towards sustainable tourism mobility. *Journal of Sustainable Tourism*, *24*, 446–462. doi:10.1080/09669582.2015.1115513
- Mair, J., & Bergin-Seers, S. (2010). The effect of interventions on the environmental behaviour of Australian motel guests. *Tourism and Hospitality Research*, *10*, 255–268. doi:10.1057/thr.2010.9
- McKercher, B., Prideaux, B., Cheung, C., & Law, R. (2010). Achieving voluntary reductions in the carbon footprint of tourism and climate change. *Journal of Sustainable Tourism*, *18*, 297–317. doi:10.1080/09669580903395022
- Mehmetoglu, M. (2010). Factors influencing the willingness to behave environmentally friendly at home and holiday settings. *Scandinavian Journal of Hospitality and Tourism*, *10*, 430–447. doi:10.1080/15022250.2010.520861
- Miao, L., & Wei, W. (2013). Consumers’ pro-environmental behavior and the underlying motivations: A comparison between household and hotel settings. *International Journal of Hospitality Management*, *32*, 102–112. doi:10.1016/j.ijhm.2012.04.008
- Midden, C. J. H., Meter, J. F., Weenig, M. H., & Zieverink, H. J. A. (1983). Using feedback, reinforcement and information to reduce energy consumption in households: A field-experiment. *Journal of Economic Psychology*, *3*, 65–86. doi:10.1016/0167-4870(83)90058-2
- Miller, D., Merrilees, B., & Coghlan, A. (2014). Sustainable urban tourism: Understanding and developing visitor pro-environmental behaviours. *Journal of Sustainable Tourism*, *23*, 26–46. doi:10.1080/09669582.2014.912219
- Miller, D. T., & Prentice, D. A. (2016). Changing norms to change behavior. *Annual Review of Psychology*, *67*, 339–361. doi:10.1146/annurev-psych-010814-015013
- Miller, G., Rathouse, K., Scarles, C., Holmes, K., & Tribe, J. (2010). Public understanding of sustainable tourism. *Annals of Tourism Research*, *37*, 627–645. doi:10.1016/j.annals.2009.12.002
- Miyake, M., & Matsuda, F. (2002). Effects of generalized self-efficacy and negative

- social comparison feedback on specific self-efficacy and performance. *Psychological Reports*, *90*, 301–308. doi:10.2466/pr0.2002.90.1.301
- Morgan, M., & Chompreeda, K. (2015). The relative effect of message based appeals to promote water conservation at a tourist resort in the Gulf of Thailand. *Environmental Communication*, *9*, 20–36. doi:10.1080/17524032.2014.917689
- Nayum, A., & Klöckner, C. A. (2014). A comprehensive socio-psychological approach to car type choice. *Journal of Environmental Psychology*, *40*, 401–411. doi:10.1016/j.jenvp.2014.10.001
- Nolan, J. M., Schultz, P. W., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2008). Normative social influence is underdetected. *Personality and Social Psychology Bulletin*, *34*, 913–23. doi:10.1177/0146167208316691
- Nordlund, A. M., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal car use. *Journal of Environmental Psychology*, *23*, 339–347. doi:10.1016/S0272-4944(03)00037-9
- Ong, T. F., & Musa, G. (2011). An examination of recreational divers' underwater behaviour by attitude–behaviour theories. *Current Issues in Tourism*, *14*, 779–795. doi:10.1080/13683500.2010.545370
- Onwezen, M. C., Antonides, G., & Bartels, J. (2013). The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. *Journal of Economic Psychology*, *39*, 141–153. doi:10.1016/j.joep.2013.07.005
- Pahl, S., Harris, P. R., Todd, H. A., & Rutter, D. R. (2005). Comparative optimism for environmental risks. *Journal of Environmental Psychology*, *25*, 1–11. doi:10.1016/j.jenvp.2004.12.004
- Parks, C. D., Sanna, L. J., & Berel, S. R. (2001). Actions of similar others as inducements to cooperate in social dilemmas. *Personality and Social Psychology Bulletin*, *27*, 345–354. doi:10.1177/0146167201273008
- Passafaro, P., Cini, F., Boi, L., D'Angelo, M., Heering, M. S., Luchetti, L., ... Triolo, M. (2015). The “sustainable tourist”: Values, attitudes, and personality traits. *Tourism and Hospitality Research*, *15*, 225–239. doi:10.1177/1467358415576086
- Peeters, P., & Dubois, G. (2010). Tourism travel under climate change mitigation constraints. *Journal of Transport Geography*, *18*, 447–457. doi:10.1016/j.jtrangeo.2009.09.003
- Perreault, S., & Bourhis, R. Y. (1999). Ethnocentrism, social identification, and discrimination. *Personality and Social Psychology Bulletin*, *25*, 92–103. doi:10.1177/0146167299025001008
- Pieters, R., Bijmolt, T., Van Raaij, F., & De Kruijk, M. (1998). Consumers' attributions of proenvironmental behavior, motivation, and ability to self and others. *Journal of Public Policy & Marketing*, *17*, 215–225.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common

-
- method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879–903. doi:10.1037/0021-9010.88.5.879
- Prussia, G. E., & Kinicki, A. J. (1996). A motivational investigation of group effectiveness using social-cognitive theory. *Journal of Applied Psychology*, *81*, 187–198. doi:10.1037/0021-9010.81.2.187
- Rabinovich, A., & Morton, T. A. (2012). Sizing fish and ponds: The joint effects of individual- and group-based feedback. *Journal of Experimental Social Psychology*, *48*, 244–249. doi:10.1016/j.jesp.2011.07.017
- Rabinovich, A., Morton, T. A., Postmes, T., & Verplanken, B. (2012). Collective self and individual choice: The effects of inter-group comparative context on environmental values and behaviour. *British Journal of Social Psychology*, *51*, 551–569. doi:10.1111/j.2044-8309.2011.02022.x
- Rahman, I., & Reynolds, D. (2016). Predicting green hotel behavioral intentions using a theory of environmental commitment and sacrifice for the environment. *International Journal of Hospitality Management*, *52*, 107–116. doi:10.1016/j.ijhm.2015.09.007
- Rapoport, A., Budescu, D. V., Suleiman, R., & Weg, E. (1992). Social dilemmas with uniformly distributed resources. In W. B. G. Liebrand, D. M. Messick, & H. A. M. Wilke (Eds.), *Social dilemmas: Theoretical issues and research findings* (pp. 43–57). Oxford, UK: Pergamon Press.
- Rees, J. H., & Bamberg, S. (2014). Climate protection needs societal change: Determinants of intention to participate in collective climate action. *European Journal of Social Psychology*, *44*, 466–473. doi:10.1002/ejsp.2032
- Reese, G., Loeschinger, D. C., Hamann, K., & Neubert, S. (2013). Sticker in the Box! Object-person distance and descriptive norms as means to reduce waste. *Ecopsychology*, *5*, 146–148. doi:10.1089/eco.2012.0075
- Reese, G., Loew, K., & Steffgen, G. (2014). A towel less: Social norms enhance pro-environmental behavior in hotels. *The Journal of Social Psychology*, *154*, 97–100. doi:10.1080/00224545.2013.855623
- Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, *64*, 104–112. doi:10.1037/0022-3514.64.1.104
- Scheibehenne, B., Jamil, T., & Wagenmakers, E.-J. (2016). Bayesian evidence synthesis can reconcile seemingly inconsistent results: The case of hotel towel reuse. *Psychological Science*, *27*, 1043–1046. doi:10.1177/0956797616644081
- Schultz, P. W. (1999). Changing behavior with normative feedback interventions: A field experiment on curbside recycling. *Basic and Applied Social Psychology*, *21*, 25–36. doi:10.1207/s15324834basp2101_3
- Schultz, P. W., Khazian, A. M., & Zaleski, A. C. (2008). Using normative social influence to promote conservation among hotel guests. *Social Influence*, *3*, 4–23.

doi:10.1080/15534510701755614

- Schultz, P. W., Messina, A., Tronu, G., Limas, E. F., Gupta, R., & Estrada, M. (2016). Personalized normative feedback and the moderating role of personal norms: A field experiment to reduce residential water consumption. *Environment and Behavior, 48*, 686–710. doi:10.1177/0013916514553835
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science, 18*, 429–434. doi:10.1111/j.1467-9280.2007.01917.x
- Schwartz, S. H. (1977). Normative influences on altruism. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology (Vol. 10)* (pp. 221–279). New York, NY: Academic Press.
- Seijts, G. H., & Latham, G. P. (2000). The effects of goal setting and group size on performance in a social dilemma. *Canadian Journal of Behavioural Science, 32*, 104–116. doi:10.1037/h0087105
- Seijts, G. H., Latham, G. P., & Whyte, G. (2009). Effect of self- and group efficacy on group performance in a mixed-motive situation. *Human Performance, 13*, 279–298. doi:10.1207/S15327043HUP1303_3
- Siero, F. W., Bakker, A. B., Dekker, G. B., & Van den Burg, M. T. C. (1996). Changing organizational energy consumption behaviour through comparative feedback. *Journal of Environmental Psychology, 16*, 235–246. doi:10.1006/jev.1996.0019
- Simpson, M. C., Gössling, S., Scott, D., Hall, C. M., & Gladin, E. (2008). *Climate change adaptation and mitigation in the tourism sector: Frameworks, tools and practices*. Paris, France: UNEP, University of Oxford, UNWTO, WMO.
- Smith, J. R., & Louis, W. R. (2008). Do as we say and as we do: The interplay of descriptive and injunctive group norms in the attitude-behaviour relationship. *British Journal of Social Psychology, 47*, 647–666. doi:10.1348/014466607X269748
- Smith, J. R., Louis, W. R., Terry, D. J., Greenaway, K. H., Clarke, M. R., & Cheng, X. (2012). Congruent or conflicted? The impact of injunctive and descriptive norms on environmental intentions. *Journal of Environmental Psychology, 32*, 353–361. doi:10.1016/j.jenvp.2012.06.001
- Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology, 38*, 104–115. doi:10.1016/j.jenvp.2014.01.002
- Steg, L., & De Groot, J. (2010). Explaining prosocial intentions: Testing causal relationships in the norm activation model. *British Journal of Social Psychology, 49*, 725–743. doi:10.1348/014466609X477745
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*, 1–10. doi:10.1016/j.jenvp.2009.01.002

-
- 29, 309–317. doi:10.1016/j.jenvp.2008.10.004
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*, 407–424. doi:10.1111/0022-4537.00175
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Research in Human Ecology, 6*, 81–97.
- Steyn, R., & Mynhardt, J. (2008). Factors that influence the forming of self-evaluation and self-efficacy perceptions. *South African Journal of Psychology, 38*, 563–573. doi:10.1177/008124630803800310
- Suls, J., Martin, R., & Wheeler, L. (2002). Social Comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science, 11*, 159–163. doi:10.1111/1467-8721.00191
- Tabachnick, B., & Fidell, L. S. (2014). *Using multivariate statistics* (6th ed.). Harlow, UK: Pearson Education.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.
- Tanford, S., & Montgomery, R. (2015). The effects of social influence and cognitive dissonance on travel purchase decisions. *Journal of Travel Research, 54*, 596–610. doi:10.1177/0047287514528287
- Terrier, L., & Marfaing, B. (2015). Using social norms and commitment to promote pro-environmental behavior among hotel guests. *Journal of Environmental Psychology, 44*, 10–15. doi:10.1016/j.jenvp.2015.09.001
- Thøgersen, J. (2000). Psychological determinants of paying attention to eco-labels in purchase decisions: Model development and multinational validation. *Journal of Consumer Policy, 23*, 285–313. doi:10.1023/A:1007122319675
- Thøgersen, J. (2004). A cognitive dissonance interpretation of consistencies and inconsistencies in environmentally responsible behavior. *Journal of Environmental Psychology, 24*, 93–103. doi:10.1016/S0272-4944(03)00039-2
- Thøgersen, J. (2006). Norms for environmentally responsible behaviour: An extended taxonomy. *Journal of Environmental Psychology, 26*, 247–261. doi:10.1016/j.jenvp.2006.09.004
- Thøgersen, J. (2008). Social norms and cooperation in real-life social dilemmas. *Journal of Economic Psychology, 29*, 458–472. doi:10.1016/j.joep.2007.12.004
- Thøgersen, J. (2009). The motivational roots of norms for environmentally responsible behavior. *Basic and Applied Social Psychology, 31*, 348–362. doi:10.1080/01973530903317144
- Thøgersen, J., & Ölander, F. (2006). The dynamic interaction of personal norms and environment-friendly buying behavior: A panel study. *Journal of Applied Social Psychology, 36*, 1758–1780. doi:10.1111/j.0021-9029.2006.00080.x
- Toner, K., Gan, M., & Leary, M. R. (2014). The impact of individual and group

- feedback on environmental intentions and self-beliefs. *Environment and Behavior*, 46, 24–45. doi:10.1177/0013916512451902
- Tornatzky, L., & Geiwitz, P. J. (1968). The effects of threat and attraction on interpersonal bargaining. *Psychonomic Science*, 13, 125–126. doi:10.3758/BF03342442
- Tropp, L. R., & Wright, S. C. (2001). Ingroup identification as the inclusion of ingroup in the self. *Personality and Social Psychology Bulletin*, 27, 585–600. doi:10.1177/0146167201275007
- UNEP-UNWTO. (2012). *Tourism in the Green Economy: Background report*. Madrid, Spain: UNWTO.
- UNWTO. (1995). *Technical manual no. 2: Collection of tourism expenditure statistics*. Madrid, Spain: UNWTO.
- UNWTO. (2009). *From Davos to Copenhagen and beyond: Advancing tourism's response to climate change. UNWTO background paper*. Madrid, Spain: UNWTO.
- UNWTO-UNEP. (2008). *Climate change and tourism: Responding to global challenges*. Madrid, Spain: UNWTO & UNEP.
- Van Lange, P. A. M., & Joireman, J. A. (2008). How we can promote behavior that serves all of us in the future. *Social Issues and Policy Review*, 2, 127–157. doi:10.1111/j.1751-2409.2008.00013.x
- Van Raaij, W. F. (2002). Stages of behavioural change: motivation, ability and opportunity. In G. C. Bartels & W. Nelissen (Eds.), *Marketing for Sustainability: Towards Transactional Policy-Making* (pp. 321–333). Amsterdam, Netherlands: IOS Press.
- Vlek, C., & Steg, L. (2007). Human behavior and environmental sustainability: Problems, driving forces, and research topics. *Journal of Social Issues*, 63, 1–19. doi:10.1111/j.1540-4560.2007.00493.x
- Von Borgstede, C., Dahlstrand, U., & Biel, A. (1999). From ought to is: Moral norms in large-scale social dilemmas. *Göteborg Psychological Reports*, 29(5), 1–17.
- Von Borgstede, C., Johansson, L.-O., & Nilsson, A. (2013). Social dilemmas: Motivational, individual and structural aspects influencing cooperation. In L. Steg, A. Van den Berg, & J. De Groot (Eds.), *Environmental Psychology: An introduction* (pp. 175–184). Chichester, UK: Wiley-Blackwell.
- Weaver, B., & Wuensch, K. L. (2013). SPSS and SAS programs for comparing Pearson correlations and OLS regression coefficients. *Behavior Research Methods*, 45, 880–95. doi:10.3758/s13428-012-0289-7
- White, J. A., & Plous, S. (1995). Self-enhancement and social responsibility: On caring more, but doing less, than others. *Journal of Applied Social Psychology*, 25, 1297–1318. doi:10.1111/j.1559-1816.1995.tb02619.x
- White, K. M., Smith, J. R., Terry, D. J., Greenslade, J. H., & McKimmie, B. M.

-
- (2009). Social influence in the theory of planned behaviour: The role of descriptive, injunctive, and in-group norms. *British Journal of Social Psychology*, 48, 135–158. doi:10.1348/014466608X295207
- Wiener, J. L., & Doescher, T. A. (1994). Cooperation and expectations of cooperation. *Journal of Public Policy & Marketing*, 13(2), 259–270.
- Wit, A., & Wilke, H. (1998). Public good provision under environmental and social uncertainty. *European Journal of Social Psychology*, 28, 249–256. doi:10.1002/(SICI)1099-0992(199803/04)28:2<249::AID-EJSP868>3.0.CO;2-J
- World Wide Fund for Nature. (2015). Økologisk fotavtrykk [Ecological footprint]. Retrieved October 5, 2015, from http://www.wwf.no/dette_jobber_med/norsk_natur/naturmangfold/okologisk_fotavtrykk/
- World Wide Fund for Nature. (2016). Footprint Calculator. Retrieved May 23, 2016, from <http://footprint.wwf.org.uk/>

Doctoral Theses at The Faculty of Psychology,
University of Bergen

1980	Allen, H.M., Dr. philos.	Parent-offspring interactions in willow grouse (<i>Lagopus L. Lagopus</i>).
1981	Myhrer, T., Dr. philos.	Behavioral Studies after selective disruption of hippocampal inputs in albino rats.
1982	Svebak, S., Dr. philos.	The significance of motivation for task-induced tonic physiological changes.
1983	Myhre, G., Dr. philos.	The Biopsychology of behavior in captive Willow ptarmigan.
	Eide, R., Dr. philos.	PSYCHOSOCIAL FACTORS AND INDICES OF HEALTH RISKS. The relationship of psychosocial conditions to subjective complaints, arterial blood pressure, serum cholesterol, serum triglycerides and urinary catecholamines in middle aged populations in Western Norway.
	Værnes, R.J., Dr. philos.	Neuropsychological effects of diving.
1984	Kolstad, A., Dr. philos.	Til diskusjonen om sammenhengen mellom sosiale forhold og psykiske strukturer. En epidemiologisk undersøkelse blant barn og unge.
	Løberg, T., Dr. philos.	Neuropsychological assessment in alcohol dependence.
1985	Hellesnes, T., Dr. philos.	Læring og problemløsning. En studie av den perseptuelle analysens betydning for verbal læring.
	Håland, W., Dr. philos.	Psykoterapi: relasjon, utviklingsprosess og effekt.
1986	Hagtvet, K.A., Dr. philos.	The construct of test anxiety: Conceptual and methodological issues.
	Jellestad, F.K., Dr. philos.	Effects of neuron specific amygdala lesions on fear-motivated behavior in rats.
1987	Aarø, L.E., Dr. philos.	Health behaviour and socioeconomic Status. A survey among the adult population in Norway.
	Underlid, K., Dr. philos.	Arbeidsløse i psykososialt perspektiv.
	Laberg, J.C., Dr. philos.	Expectancy and classical conditioning in alcoholics' craving.
	Vollmer, F.C., Dr. philos.	Essays on explanation in psychology.
	Ellertsen, B., Dr. philos.	Migraine and tension headache: Psychophysiology, personality and therapy.
1988	Kaufmann, A., Dr. philos.	Antisocial atferd hos ungdom. En studie av psykologiske determinanter.

	Mykletun, R.J., Dr. philos.	Teacher stress: personality, work-load and health.
	Havik, O.E., Dr. philos.	After the myocardial infarction: A medical and psychological study with special emphasis on perceived illness.
1989	Bråten, S., Dr. philos.	Menneskedyaden. En teoretisk tese om sinnets dialogiske natur med informasjons- og utviklingspsykologiske implikasjoner sammenholdt med utvalgte spedbarnsstudier.
	Wold, B., Dr. psychol.	Lifestyles and physical activity. A theoretical and empirical analysis of socialization among children and adolescents.
1990	Flaten, M.A., Dr. psychol.	The role of habituation and learning in reflex modification.
1991	Alsaker, F.D., Dr. philos.	Global negative self-evaluations in early adolescence.
	Kraft, P., Dr. philos.	AIDS prevention in Norway. Empirical studies on diffusion of knowledge, public opinion, and sexual behaviour.
	Endresen, I.M., Dr. philos.	Psychoimmunological stress markers in working life.
	Faleide, A.O., Dr. philos.	Asthma and allergy in childhood. Psychosocial and psychotherapeutic problems.
1992	Dalen, K., Dr. philos.	Hemispheric asymmetry and the Dual-Task Paradigm: An experimental approach.
	Bø, I.B., Dr. philos.	Ungdoms sosiale økologi. En undersøkelse av 14-16 åringers sosiale nettverk.
	Nivison, M.E., Dr. philos.	The relationship between noise as an experimental and environmental stressor, physiological changes and psychological factors.
	Torgersen, A.M., Dr. philos.	Genetic and environmental influence on temperamental behaviour. A longitudinal study of twins from infancy to adolescence.
1993	Larsen, S., Dr. philos.	Cultural background and problem drinking.
	Nordhus, I.H., Dr. philos.	Family caregiving. A community psychological study with special emphasis on clinical interventions.
	Thuen, F., Dr. psychol.	Accident-related behaviour among children and young adolescents: Prediction and prevention.
	Solheim, R., Dr. philos.	Spesifikke lærevansker. Diskrepanskriteriet anvendt i seleksjonsmetodikk.
	Johnsen, B.H., Dr. psychol.	Brain asymmetry and facial emotional expressions: Conditioning experiments.
1994	Tønnessen, F.E., Dr. philos.	The etiology of Dyslexia.
	Kvale, G., Dr. psychol.	Psychological factors in anticipatory nausea and vomiting in cancer chemotherapy.

	Asbjørnsen, A.E., Dr. psychol.	Structural and dynamic factors in dichotic listening: An interactional model.
	Bru, E., Dr. philos.	The role of psychological factors in neck, shoulder and low back pain among female hospitale staff.
	Braathen, E.T., Dr. psychol.	Prediction of exellence and discontinuation in different types of sport: The significance of motivation and EMG.
	Johannessen, B.F., Dr. philos.	Det flytende kjønnnet. Om lederskap, politikk og identitet.
1995	Sam, D.L., Dr. psychol.	Acculturation of young immigrants in Norway: A psychological and socio-cultural adaptation.
	Bjaalid, I.-K., Dr. philos	Component processes in word recognition.
	Martinsen, Ø., Dr. philos.	Cognitive style and insight.
	Nordby, H., Dr. philos.	Processing of auditory deviant events: Mismatch negativity of event-related brain potentials.
	Raaheim, A., Dr. philos.	Health perception and health behaviour, theoretical considerations, empirical studies, and practical implications.
	Seltzer, W.J., Dr.philos.	Studies of Psychocultural Approach to Families in Therapy.
	Brun, W., Dr.philos.	Subjective conceptions of uncertainty and risk.
	Aas, H.N., Dr. psychol.	Alcohol expectancies and socialization: Adolescents learning to drink.
	Bjørkly, S., Dr. psychol.	Diagnosis and prediction of intra-institutional aggressive behaviour in psychotic patients
1996	Anderssen, N., Dr. psychol.	Physical activity of young people in a health perspective: Stability, change and social influences.
	Sandal, Gro Mjeldheim, Dr. psychol.	Coping in extreme environments: The role of personality.
	Strumse, Einar, Dr. philos.	The psychology of aesthetics: explaining visual preferences for agrarian landscapes in Western Norway.
	Hestad, Knut, Dr. philos.	Neuropsychological deficits in HIV-1 infection.
	Lugoe, L.Wycliffe, Dr. philos.	Prediction of Tanzanian students' HIV risk and preventive behaviours
	Sandvik, B. Gunnhild, Dr. philos.	Fra distriktsjordmor til institusjonsjordmor. Fremveksten av en profesjon og en profesjonsutdanning
	Lie, Gro Therese, Dr. psychol.	The disease that dares not speak its name: Studies on factors of importance for coping with HIV/AIDS in Northern Tanzania
	Øygaard, Lisbet, Dr. philos.	Health behaviors among young adults. A psychological and sociological approach
	Stormark, Kjell Morten, Dr. psychol.	Emotional modulation of selective attention: Experimental and clinical evidence.

	Einarsen, Ståle, Dr. psychol.	Bullying and harassment at work: epidemiological and psychosocial aspects.
1997	Knivsberg, Ann-Mari, Dr. philos.	Behavioural abnormalities and childhood psychopathology: Urinary peptide patterns as a potential tool in diagnosis and remediation.
	Eide, Arne H., Dr. philos.	Adolescent drug use in Zimbabwe. Cultural orientation in a global-local perspective and use of psychoactive substances among secondary school students.
	Sørensen, Marit, Dr. philos.	The psychology of initiating and maintaining exercise and diet behaviour.
	Skjæveland, Oddvar, Dr. psychol.	Relationships between spatial-physical neighborhood attributes and social relations among neighbors.
	Zewdie, Tekla, Dr. philos.	Mother-child relational patterns in Ethiopia. Issues of developmental theories and intervention programs.
	Wilhelmsen, Britt Unni, Dr. philos.	Development and evaluation of two educational programmes designed to prevent alcohol use among adolescents.
	Manger, Terje, Dr. philos.	Gender differences in mathematical achievement among Norwegian elementary school students.
1998	Lindstrøm, Torill Christine, Dr. philos.	«Good Grief»: Adapting to Bereavement.
V	Skogstad, Anders, Dr. philos.	Effects of leadership behaviour on job satisfaction, health and efficiency.
	Haldorsen, Ellen M. Håland, Dr. psychol.	Return to work in low back pain patients.
	Besemer, Susan P., Dr. philos.	Creative Product Analysis: The Search for a Valid Model for Understanding Creativity in Products.
H	Winje, Dagfinn, Dr. psychol.	Psychological adjustment after severe trauma. A longitudinal study of adults' and children's posttraumatic reactions and coping after the bus accident in Måbødalen, Norway 1988.
	Vosburg, Suzanne K., Dr. philos.	The effects of mood on creative problem solving.
	Eriksen, Hege R., Dr. philos.	Stress and coping: Does it really matter for subjective health complaints?
	Jakobsen, Reidar, Dr. psychol.	Empiriske studier av kunnskap og holdninger om hiv/aids og den normative seksuelle utvikling i ungdomsårene.
1999	Mikkelsen, Aslaug, Dr. philos.	Effects of learning opportunities and learning climate on occupational health.
V	Samdal, Oddrun, Dr. philos.	The school environment as a risk or resource for students' health-related behaviours and subjective well-being.
	Friestad, Christine, Dr. philos.	Social psychological approaches to smoking.
	Ekeland, Tor-Johan, Dr. philos.	Meining som medisin. Ein analyse av placebofenomenet og implikasjoner for terapi og terapeutiske teoriar.

H	Saban, Sara, Dr. psychol.	Brain Asymmetry and Attention: Classical Conditioning Experiments.
	Carlsten, Carl Thomas, Dr. philos.	God lesing – God læring. En aksjonsrettet studie av undervisning i fagtekstlesing.
	Dundas, Ingrid, Dr. psychol.	Functional and dysfunctional closeness. Family interaction and children's adjustment.
	Engen, Liv, Dr. philos.	Kartlegging av leseferdighet på småskoletrinnet og vurdering av faktorer som kan være av betydning for optimal leseutvikling.
2000 V	Hovland, Ole Johan, Dr. philos.	Transforming a self-preserving "alarm" reaction into a self-defeating emotional response: Toward an integrative approach to anxiety as a human phenomenon.
	Lillejord, Sølvi, Dr. philos.	Handlingsrasjonalitet og spesialundervisning. En analyse av aktørperspektiver.
	Sandell, Ove, Dr. philos.	Den varme kunnskapen.
	Oftedal, Marit Petersen, Dr. philos.	Diagnostisering av ordavkodingsvansker: En prosessanalytisk tilnæringsmåte.
H	Sandbak, Tone, Dr. psychol.	Alcohol consumption and preference in the rat: The significance of individual differences and relationships to stress pathology
	Eid, Jarle, Dr. psychol.	Early predictors of PTSD symptom reporting; The significance of contextual and individual factors.
2001 V	Skinstad, Anne Helene, Dr. philos.	Substance dependence and borderline personality disorders.
	Binder, Per-Einar, Dr. psychol.	Individet og den meningsbærende andre. En teoretisk undersøkelse av de mellommenneskelige forutsetningene for psykisk liv og utvikling med utgangspunkt i Donald Winnicotts teori.
	Roald, Ingvild K., Dr. philos.	Building of concepts. A study of Physics concepts of Norwegian deaf students.
H	Fekadu, Zelalem W., Dr. philos.	Predicting contraceptive use and intention among a sample of adolescent girls. An application of the theory of planned behaviour in Ethiopian context.
	Melesse, Fantu, Dr. philos.	The more intelligent and sensitive child (MISC) mediational intervention in an Ethiopian context: An evaluation study.
	Råheim, Målfrid, Dr. philos.	Kvinnerens kroppserfaring og livssammenheng. En fenomenologisk – hermeneutisk studie av friske kvinner og kvinner med kroniske muskelsmerter.
	Engelsen, Birthe Kari, Dr. psychol.	Measurement of the eating problem construct.
	Lau, Bjørn, Dr. philos.	Weight and eating concerns in adolescence.
2002 V	Ihlebak, Camilla, Dr. philos.	Epidemiological studies of subjective health complaints.

	Rosén, Gunnar O. R., Dr. philos.	The phantom limb experience. Models for understanding and treatment of pain with hypnosis.
	Høines, Marit Johnsen, Dr. philos.	Fleksible språkrom. Matematikklæring som tekstutvikling.
	Anthun, Roald Andor, Dr. philos.	School psychology service quality. Consumer appraisal, quality dimensions, and collaborative improvement potential
	Pallesen, Ståle, Dr. psychol.	Insomnia in the elderly. Epidemiology, psychological characteristics and treatment.
	Midthassel, Unni Vere, Dr. philos.	Teacher involvement in school development activity. A study of teachers in Norwegian compulsory schools
	Kallestad, Jan Helge, Dr. philos.	Teachers, schools and implementation of the Olweus Bullying Prevention Program.
H	Ofte, Sonja Helgesen, Dr. psychol.	Right-left discrimination in adults and children.
	Netland, Marit, Dr. psychol.	Exposure to political violence. The need to estimate our estimations.
	Diseth, Åge, Dr. psychol.	Approaches to learning: Validity and prediction of academic performance.
	Bjuland, Raymond, Dr. philos.	Problem solving in geometry. Reasoning processes of student teachers working in small groups: A dialogical approach.
2003 V	Arefjord, Kjersti, Dr. psychol.	After the myocardial infarction – the wives' view. Short- and long-term adjustment in wives of myocardial infarction patients.
	Ingjaldsson, Jón Þorvaldur, Dr. psychol.	Unconscious Processes and Vagal Activity in Alcohol Dependency.
	Holden, Børge, Dr. philos.	Følger av atferdsanalytiske forklaringer for atferdsanalysens tilnærming til utforming av behandling.
	Holsen, Ingrid, Dr. philos.	Depressed mood from adolescence to 'emerging adulthood'. Course and longitudinal influences of body image and parent-adolescent relationship.
	Hammar, Åsa Karin, Dr. psychol.	Major depression and cognitive dysfunction- An experimental study of the cognitive effort hypothesis.
	Sprugevica, Ieva, Dr. philos.	The impact of enabling skills on early reading acquisition.
	Gabrielsen, Egil, Dr. philos.	LESE FOR LIVET. Lesekompetansen i den norske voksenbefolkningen sett i lys av visjonen om en enhetsskole.
H	Hansen, Anita Lill, Dr. psychol.	The influence of heart rate variability in the regulation of attentional and memory processes.
	Dyregrov, Kari, Dr. philos.	The loss of child by suicide, SIDS, and accidents: Consequences, needs and provisions of help.
2004 V	Torsheim, Torbjørn, Dr. psychol.	Student role strain and subjective health complaints: Individual, contextual, and longitudinal perspectives.

	Haugland, Bente Storm Mowatt Dr. psychol.	Parental alcohol abuse. Family functioning and child adjustment.
	Milde, Anne Marita, Dr. psychol.	Ulcerative colitis and the role of stress. Animal studies of psychobiological factors in relationship to experimentally induced colitis.
	Stornes, Tor, Dr. philos.	Socio-moral behaviour in sport. An investigation of perceptions of sportspersonship in handball related to important factors of socio-moral influence.
	Mæhle, Magne, Dr. philos.	Re-inventing the child in family therapy: An investigation of the relevance and applicability of theory and research in child development for family therapy involving children.
	Kobbeltvedt, Therese, Dr. psychol.	Risk and feelings: A field approach.
2004	Thomsen, Tormod, Dr. psychol.	Localization of attention in the brain.
H	Løberg, Else-Marie, Dr. psychol.	Functional laterality and attention modulation in schizophrenia: Effects of clinical variables.
	Kyrkjebø, Jane Mikkelsen, Dr. philos.	Learning to improve: Integrating continuous quality improvement learning into nursing education.
	Laumann, Karin, Dr. psychol.	Restorative and stress-reducing effects of natural environments: Experiential, behavioural and cardiovascular indices.
	Holgensen, Helge, PhD	Mellom oss - Essay i relasjonell psykoanalyse.
2005	Hetland, Hilde, Dr. psychol.	Leading to the extraordinary? Antecedents and outcomes of transformational leadership.
V	Iversen, Anette Christine, Dr. philos.	Social differences in health behaviour: the motivational role of perceived control and coping.
2005	Mathisen, Gro Ellen, PhD	Climates for creativity and innovation: Definitions, measurement, predictors and consequences.
H	Sævi, Tone, Dr. philos.	Seeing disability pedagogically – The lived experience of disability in the pedagogical encounter.
	Wiiium, Nora, PhD	Intrapersonal factors, family and school norms: combined and interactive influence on adolescent smoking behaviour.
	Kanagaratnam, Pushpa, PhD	Subjective and objective correlates of Posttraumatic Stress in immigrants/refugees exposed to political violence.
	Larsen, Torill M. B. , PhD	Evaluating principals` and teachers` implementation of Second Step. A case study of four Norwegian primary schools.
	Bancila, Delia, PhD	Psychosocial stress and distress among Romanian adolescents and adults.
2006	Hillestad, Torgeir Martin, Dr. philos.	Normalitet og avvik. Forutsetninger for et objektivt psykopatologisk avviksbegrep. En psykologisk, sosial, erkjennelsesteoretisk og teorihistorisk framstilling.
V		

	Nordanger, Dag Øystein, Dr. psychol.	Psychosocial discourses and responses to political violence in post-war Tigray, Ethiopia.
	Rimol, Lars Morten, PhD	Behavioral and fMRI studies of auditory laterality and speech sound processing.
	Krumsvik, Rune Johan, Dr. philos.	ICT in the school. ICT-initiated school development in lower secondary school.
	Norman, Elisabeth, Dr. psychol.	Gut feelings and unconscious thought: An exploration of fringe consciousness in implicit cognition.
	Israel, K Pravin, Dr. psychol.	Parent involvement in the mental health care of children and adolescents. Empirical studies from clinical care setting.
	Glasø, Lars, PhD	Affects and emotional regulation in leader-subordinate relationships.
	Knutsen, Ketil, Dr. philos.	HISTORIER UNGDOM LEVER – En studie av hvordan ungdommer bruker historie for å gjøre livet meningsfullt.
	Matthiesen, Stig Berge, PhD	Bullying at work. Antecedents and outcomes.
2006	Gramstad, Arne, PhD	Neuropsychological assessment of cognitive and emotional functioning in patients with epilepsy.
H	Bendixen, Mons, PhD	Antisocial behaviour in early adolescence: Methodological and substantive issues.
	Mrumbi, Khalifa Maulid, PhD	Parental illness and loss to HIV/AIDS as experienced by AIDS orphans aged between 12-17 years from Temeke District, Dar es Salaam, Tanzania: A study of the children's psychosocial health and coping responses.
	Hetland, Jørn, Dr. psychol.	The nature of subjective health complaints in adolescence: Dimensionality, stability, and psychosocial predictors
	Kakoko, Deodatus Conatus Vitalis, PhD	Voluntary HIV counselling and testing service uptake among primary school teachers in Mwanza, Tanzania: assessment of socio-demographic, psychosocial and socio-cognitive aspects
	Mykletun, Arnstein, Dr. psychol.	Mortality and work-related disability as long-term consequences of anxiety and depression: Historical cohort designs based on the HUNT-2 study
	Sivertsen, Børge, PhD	Insomnia in older adults. Consequences, assessment and treatment.
2007	Singhammer, John, Dr. philos.	Social conditions from before birth to early adulthood – the influence on health and health behaviour
V	Janvin, Carmen Ani Cristea, PhD	Cognitive impairment in patients with Parkinson's disease: profiles and implications for prognosis
	Braarud, Hanne Cecilie, Dr. psychol.	Infant regulation of distress: A longitudinal study of transactions between mothers and infants
	Tveito, Torill Helene, PhD	Sick Leave and Subjective Health Complaints

	Magnussen, Liv Heide, PhD	Returning disability pensioners with back pain to work
	Thuen, Elin Marie, Dr.philos.	Learning environment, students' coping styles and emotional and behavioural problems. A study of Norwegian secondary school students.
	Solberg, Ole Asbjørn, PhD	Peacekeeping warriors – A longitudinal study of Norwegian peacekeepers in Kosovo
2007	Søreide, Gunn Elisabeth, Dr.philos.	Narrative construction of teacher identity
H	Svensen, Erling, PhD	WORK & HEALTH. Cognitive Activation Theory of Stress applied in an organisational setting.
	Øverland, Simon Nygaard, PhD	Mental health and impairment in disability benefits. Studies applying linkages between health surveys and administrative registries.
	Eichele, Tom, PhD	Electrophysiological and Hemodynamic Correlates of Expectancy in Target Processing
	Børhaug, Kjetil, Dr.philos.	Oppseding til demokrati. Ein studie av politisk oppseding i norsk skule.
	Eikeland, Thorleif, Dr.philos.	Om å vokse opp på barnehjem og på sykehus. En undersøkelse av barnehjemsbarns opplevelser på barnehjem sammenholdt med sanatoriebarns beskrivelse av langvarige sykehusopphold – og et forsøk på forklaring.
	Wadel, Carl Cato, Dr.philos.	Medarbeidersamhandling og medarbeiderledelse i en lagbasert organisasjon
	Vinje, Hege Forbech, PhD	Thriving despite adversity: Job engagement and self-care among community nurses
	Noort, Maurits van den, PhD	Working memory capacity and foreign language acquisition
2008	Breivik, Kyrre, Dr.psychol.	The Adjustment of Children and Adolescents in Different Post-Divorce Family Structures. A Norwegian Study of Risks and Mechanisms.
V	Johnsen, Grethe E., PhD	Memory impairment in patients with posttraumatic stress disorder
	Sætrevik, Bjørn, PhD	Cognitive Control in Auditory Processing
	Carvalho, Susana Fonseca, PhD	Prevention of bullying in schools: an ecological model
2008	Brønnick, Kolbjørn Selvåg	Attentional dysfunction in dementia associated with Parkinson's disease.
H	Posserud, Maj-Britt Rocio	Epidemiology of autism spectrum disorders
	Haug, Ellen	Multilevel correlates of physical activity in the school setting
	Skjerve, Arvid	Assessing mild dementia – a study of brief cognitive tests.

	Kjønniksen, Lise	The association between adolescent experiences in physical activity and leisure time physical activity in adulthood: a ten year longitudinal study
	Gundersen, Hilde	The effects of alcohol and expectancy on brain function
	Omvik, Siri	Insomnia – a night and day problem
2009 V	Molde, Helge	Pathological gambling: prevalence, mechanisms and treatment outcome.
	Foss, Else	Den omsorgsfulle væremåte. En studie av voksnes væremåte i forhold til barn i barnehagen.
	Westrheim, Kariane	Education in a Political Context: A study of Knowledge Processes and Learning Sites in the PKK.
	Wehling, Eike	Cognitive and olfactory changes in aging
	Wangberg, Silje C.	Internet based interventions to support health behaviours: The role of self-efficacy.
	Nielsen, Morten B.	Methodological issues in research on workplace bullying. Operationalisations, measurements and samples.
	Sandu, Anca Larisa	MRI measures of brain volume and cortical complexity in clinical groups and during development.
	Guribye, Eugene	Refugees and mental health interventions
	Sørensen, Lin	Emotional problems in inattentive children – effects on cognitive control functions.
	Tjomsland, Hege E.	Health promotion with teachers. Evaluation of the Norwegian Network of Health Promoting Schools: Quantitative and qualitative analyses of predisposing, reinforcing and enabling conditions related to teacher participation and program sustainability.
	Helleve, Ingrid	Productive interactions in ICT supported communities of learners
2009 H	Skorpen, Aina Øye, Christine	Dagliglivet i en psykiatrisk institusjon: En analyse av miljøterapeutiske praksiser
	Andreassen, Cecilie Schou	WORKAHOLISM – Antecedents and Outcomes
	Stang, Ingun	Being in the same boat: An empowerment intervention in breast cancer self-help groups
	Sequeira, Sarah Dorothee Dos Santos	The effects of background noise on asymmetrical speech perception
	Kleiven, Jo, dr.philos.	The Lillehammer scales: Measuring common motives for vacation and leisure behavior
	Jónsdóttir, Guðrún	Dubito ergo sum? Ni jenter møter naturfaglig kunnskap.
	Hove, Oddbjørn	Mental health disorders in adults with intellectual disabilities - Methods of assessment and prevalence of mental health disorders and problem behaviour
	Wageningen, Heidi Karin van	The role of glutamate on brain function

	Bjørkvik, Jofrid	God nok? Selvaktelse og interpersonlig fungering hos pasienter innen psykisk helsevern: Forholdet til diagnoser, symptomer og behandlingsutbytte
	Andersson, Martin	A study of attention control in children and elderly using a forced-attention dichotic listening paradigm
	Almås, Aslaug Grov	Teachers in the Digital Network Society: Visions and Realities. A study of teachers' experiences with the use of ICT in teaching and learning.
	Ulvik, Marit	Lærerutdanning som dannning? Tre stemmer i diskusjonen
2010	Skår, Randi	Læringsprosesser i sykepleieres profesjonsutøvelse. En studie av sykepleieres læringserfaringer.
V	Roald, Knut	Kvalitetsvurdering som organisasjonslæring mellom skole og skoleeigar
	Lunde, Linn-Heidi	Chronic pain in older adults. Consequences, assessment and treatment.
	Danielsen, Anne Grete	Perceived psychosocial support, students' self-reported academic initiative and perceived life satisfaction
	Hysing, Mari	Mental health in children with chronic illness
	Olsen, Olav Kjellevoid	Are good leaders moral leaders? The relationship between effective military operational leadership and morals
	Riese, Hanne	Friendship and learning. Entrepreneurship education through mini-enterprises.
	Holthe, Asle	Evaluating the implementation of the Norwegian guidelines for healthy school meals: A case study involving three secondary schools
H	Hauge, Lars Johan	Environmental antecedents of workplace bullying: A multi-design approach
	Bjørkelo, Brita	Whistleblowing at work: Antecedents and consequences
	Reme, Silje Endresen	Common Complaints – Common Cure? Psychiatric comorbidity and predictors of treatment outcome in low back pain and irritable bowel syndrome
	Helland, Wenche Andersen	Communication difficulties in children identified with psychiatric problems
	Beneventi, Harald	Neuronal correlates of working memory in dyslexia
	Thygesen, Elin	Subjective health and coping in care-dependent old persons living at home
	Aanes, Mette Marthinussen	Poor social relationships as a threat to belongingness needs. Interpersonal stress and subjective health complaints: Mediating and moderating factors.
	Anker, Morten Gustav	Client directed outcome informed couple therapy

	Bull, Torill	Combining employment and child care: The subjective well-being of single women in Scandinavia and in Southern Europe
	Viig, Nina Grieg	Tilrettelegging for læreres deltakelse i helsefremmende arbeid. En kvalitativ og kvantitativ analyse av sammenhengen mellom organisatoriske forhold og læreres deltakelse i utvikling og implementering av Europeisk Nettverk av Helsefremmende Skoler i Norge
	Wolff, Katharina	To know or not to know? Attitudes towards receiving genetic information among patients and the general public.
	Ogden, Terje, dr.philos.	Familiebasert behandling av alvorlige atferdsproblemer blant barn og ungdom. Evaluering og implementering av evidensbaserte behandlingsprogrammer i Norge.
	Solberg, Mona Elin	Self-reported bullying and victimisation at school: Prevalence, overlap and psychosocial adjustment.
2011	Bye, Hege Høivik	Self-presentation in job interviews. Individual and cultural differences in applicant self-presentation during job interviews and hiring managers' evaluation
V	Notelaers, Guy	Workplace bullying. A risk control perspective.
	Moltu, Christian	Being a therapist in difficult therapeutic impasses. A hermeneutic phenomenological analysis of skilled psychotherapists' experiences, needs, and strategies in difficult therapies ending well.
	Myrseth, Helga	Pathological Gambling - Treatment and Personality Factors
	Schanche, Elisabeth	From self-criticism to self-compassion. An empirical investigation of hypothesized change processes in the Affect Phobia Treatment Model of short-term dynamic psychotherapy for patients with Cluster C personality disorders.
	Våpenstad, Eystein Victor, dr.philos.	Det tempererte nærvær. En teoretisk undersøkelse av psykoteraeutens subjektivitet i psykoanalyse og psykoanalytisk psykoterapi.
	Haukebø, Kristin	Cognitive, behavioral and neural correlates of dental and intra-oral injection phobia. Results from one treatment and one fMRI study of randomized, controlled design.
	Harris, Anette	Adaptation and health in extreme and isolated environments. From 78°N to 75°S.
	Bjørknes, Ragnhild	Parent Management Training-Oregon Model: intervention effects on maternal practice and child behavior in ethnic minority families
	Mamen, Asgeir	Aspects of using physical training in patients with substance dependence and additional mental distress
	Espevik, Roar	Expert teams: Do shared mental models of team members make a difference
	Haara, Frode Olav	Unveiling teachers' reasons for choosing practical activities in mathematics teaching

2011	Hauge, Hans Abraham	How can employee empowerment be made conducive to both employee health and organisation performance? An empirical investigation of a tailor-made approach to organisation learning in a municipal public service organisation.
H	Melkevik, Ole Rogstad	Screen-based sedentary behaviours: pastimes for the poor, inactive and overweight? A cross-national survey of children and adolescents in 39 countries.
	Vøllestad, Jon	Mindfulness-based treatment for anxiety disorders. A quantitative review of the evidence, results from a randomized controlled trial, and a qualitative exploration of patient experiences.
	Tolo, Astrid	Hvordan blir lærerkompetanse konstruert? En kvalitativ studie av PPU-studenters kunnskapsutvikling.
	Saus, Evelyn-Rose	Training effectiveness: Situation awareness training in simulators
	Nordgreen, Tine	Internet-based self-help for social anxiety disorder and panic disorder. Factors associated with effect and use of self-help.
	Munkvold, Linda Helen	Oppositional Defiant Disorder: Informant discrepancies, gender differences, co-occurring mental health problems and neurocognitive function.
	Christiansen, Øivin	Når barn plasseres utenfor hjemmet: beslutninger, forløp og relasjoner. Under barnevernets (ved)tak.
	Brunborg, Geir Scott	Conditionability and Reinforcement Sensitivity in Gambling Behaviour
	Hystad, Sigurd William	Measuring Psychological Resiliency: Validation of an Adapted Norwegian Hardiness Scale
2012	Roness, Dag	Hvorfor bli lærer? Motivasjon for utdanning og utøving.
V	Fjermestad, Krister Westlye	The therapeutic alliance in cognitive behavioural therapy for youth anxiety disorders
	Jenssen, Eirik Sørnes	Tilpasset opplæring i norsk skole: politikeres, skolelederes og læreres handlingsvalg
	Saksvik-Lehouillier, Ingvild	Shift work tolerance and adaptation to shift work among offshore workers and nurses
	Johansen, Venke Frederike	Når det intime blir offentlig. Om kvinners åpenhet om brystkreft og om markedsføring av brystkreftsaken.
	Herheim, Rune	Pupils collaborating in pairs at a computer in mathematics learning: investigating verbal communication patterns and qualities
	Vie, Tina Løkke	Cognitive appraisal, emotions and subjective health complaints among victims of workplace bullying: A stress-theoretical approach
	Jones, Lise Øen	Effects of reading skills, spelling skills and accompanying efficacy beliefs on participation in education. A study in Norwegian prisons.

2012 H	Danielsen, Yngvild Sørebo	Childhood obesity – characteristics and treatment. Psychological perspectives.
	Horverak, Jøri Gytre	Sense or sensibility in hiring processes. Interviewee and interviewer characteristics as antecedents of immigrant applicants' employment probabilities. An experimental approach.
	Jøsendal, Ola	Development and evaluation of BE smokeFREE, a school-based smoking prevention program
	Osnes, Berge	Temporal and Posterior Frontal Involvement in Auditory Speech Perception
	Drageset, Sigrunn	Psychological distress, coping and social support in the diagnostic and preoperative phase of breast cancer
	Aasland, Merethe Schanke	Destructive leadership: Conceptualization, measurement, prevalence and outcomes
	Bakibinga, Pauline	The experience of job engagement and self-care among Ugandan nurses and midwives
	Skogen, Jens Christoffer	Foetal and early origins of old age health. Linkage between birth records and the old age cohort of the Hordaland Health Study (HUSK)
	Leveresen, Ingrid	Adolescents' leisure activity participation and their life satisfaction: The role of demographic characteristics and psychological processes
	Hanss, Daniel	Explaining sustainable consumption: Findings from cross-sectional and intervention approaches
Rød, Per Arne	Barn i klem mellom foreldrekonflikter og samfunnsmessig beskyttelse	
2013 V	Mentzoni, Rune Aune	Structural Characteristics in Gambling
	Knudsen, Ann Kristin	Long-term sickness absence and disability pension award as consequences of common mental disorders. Epidemiological studies using a population-based health survey and official ill health benefit registries.
	Strand, Mari	Emotional information processing in recurrent MDD
	Veseth, Marius	Recovery in bipolar disorder. A reflexive-collaborative exploration of the lived experiences of healing and growth when battling a severe mental illness
	Mæland, Silje	Sick leave for patients with severe subjective health complaints. Challenges in general practice.
	Mjaaland, Thera	At the frontiers of change? Women and girls' pursuit of education in north-western Tigray, Ethiopia
	Odéen, Magnus	Coping at work. The role of knowledge and coping expectancies in health and sick leave.
	Hynninen, Kia Minna Johanna	Anxiety, depression and sleep disturbance in chronic obstructive pulmonary disease (COPD). Associations, prevalence and effect of psychological treatment.

	Flo, Elisabeth	Sleep and health in shift working nurses
	Aasen, Elin Margrethe	From paternalism to patient participation? The older patients undergoing hemodialysis, their next of kin and the nurses: a discursive perspective on perception of patient participation in dialysis units
	Ekornås, Belinda	Emotional and Behavioural Problems in Children: Self-perception, peer relationships, and motor abilities
	Corbin, J. Hope	North-South Partnerships for Health: Key Factors for Partnership Success from the Perspective of the KIWAKKUKI
	Birkeland, Marianne Skogbrott	Development of global self-esteem: The transition from adolescence to adulthood
2013	Gianella-Malca, Camila	Challenges in Implementing the Colombian Constitutional Court's Health-Care System Ruling of 2008
H	Hovland, Anders	Panic disorder – Treatment outcomes and psychophysiological concomitants
	Mortensen, Øystein	The transition to parenthood – Couple relationships put to the test
	Årdal, Guro	Major Depressive Disorder – a Ten Year Follow-up Study. Inhibition, Information Processing and Health Related Quality of Life
	Johansen, Rino Bandlitz	The impact of military identity on performance in the Norwegian armed forces
	Bøe, Tormod	Socioeconomic Status and Mental Health in Children and Adolescents
2014	Nordmo, Ivar	Gjennom nåløyet – studenters læringserfaringer i psykologutdanningen
V	Dovran, Anders	Childhood Trauma and Mental Health Problems in Adult Life
	Hegelstad, Wenche ten Velden	Early Detection and Intervention in Psychosis: A Long-Term Perspective
	Urheim, Ragnar	Forståelse av pasientaggresjon og forklaringer på nedgang i voldsrater ved Regional sikkerhetsavdeling, Sandviken sykehus
	Kinn, Liv Grethe	Round-Trips to Work. Qualitative studies of how persons with severe mental illness experience work integration.
	Rød, Anne Marie Kinn	Consequences of social defeat stress for behaviour and sleep. Short-term and long-term assessments in rats.
	Nygård, Merethe	Schizophrenia – Cognitive Function, Brain Abnormalities, and Cannabis Use
	Tjora, Tore	Smoking from adolescence through adulthood: the role of family, friends, depression and socioeconomic status. Predictors of smoking from age 13 to 30 in the "The Norwegian Longitudinal Health Behaviour Study" (NLHB)
	Vangsnes, Vigdis	The Dramaturgy and Didactics of Computer Gaming. A Study of a Medium in the Educational Context of Kindergartens.

	Nordahl, Kristin Berg	Early Father-Child Interaction in a Father-Friendly Context: Gender Differences, Child Outcomes, and Protective Factors related to Fathers' Parenting Behaviors with One-year-olds
2014 H	Sandvik, Asle Makoto	Psychopathy – the heterogeneity of the construct
	Skotheim, Siv	Maternal emotional distress and early mother-infant interaction: Psychological, social and nutritional contributions
	Halleland, Helene Barone	Executive Functioning in adult Attention Deficit Hyperactivity Disorder (ADHD). From basic mechanisms to functional outcome.
	Halvorsen, Kirsti Vindal	Partnerskap i lærerutdanning, sett fra et økologisk perspektiv
	Solbue, Vibeke	Dialogen som visker ut kategorier. En studie av hvilke erfaringer innvandererungdommer og norskfødte med innvandrerforeldre har med videregående skole. Hva forteller ungdommenes erfaringer om videregående skoles håndtering av etniske ulikheter?
	Kvalevaag, Anne Lise	Fathers' mental health and child development. The predictive value of fathers' psychological distress during pregnancy for the social, emotional and behavioural development of their children
	Sandal, Ann Karin	Ungdom og utdanningsval. Om elevar sine opplevingar av val og overgangsprossessar.
	Haug, Thomas	Predictors and moderators of treatment outcome from high- and low-intensity cognitive behavioral therapy for anxiety disorders. Association between patient and process factors, and the outcome from guided self-help, stepped care, and face-to-face cognitive behavioral therapy.
	Sjølie, Hege	Experiences of Members of a Crisis Resolution Home Treatment Team. Personal history, professional role and emotional support in a CRHT team.
	Falkenberg, Liv Eggset	Neuronal underpinnings of healthy and dysfunctional cognitive control
Mrdalj, Jelena	The early life condition. Importance for sleep, circadian rhythmicity, behaviour and response to later life challenges	
Hesjedal, Elisabeth	Tverrprofesjonelt samarbeid mellom skule og barnevern: Kva kan støtte utsette barn og unge?	
2015 V	Hauken, May Aasebø	« <i>The cancer treatment was only half the work!</i> » A Mixed-Method Study of Rehabilitation among Young Adult Cancer Survivors
	Ryland, Hilde Katrin	Social functioning and mental health in children: the influence of chronic illness and intellectual function
	Rønsen, Anne Kristin	Vurdering som profesjonskompetanse. Refleksjonsbasert utvikling av læreres kompetanse i formativ vurdering

	Hoff, Helge Andreas	Thinking about Symptoms of Psychopathy in Norway: Content Validation of the Comprehensive Assessment of Psychopathic Personality (CAPP) Model in a Norwegian Setting
	Schmid, Marit Therese	Executive Functioning in recurrent- and first episode Major Depressive Disorder. Longitudinal studies
	Sand, Liv	Body Image Distortion and Eating Disturbances in Children and Adolescents
	Matanda, Dennis Juma	Child physical growth and care practices in Kenya: Evidence from Demographic and Health Surveys
	Amugsi, Dickson Abanimi	Child care practices, resources for care, and nutritional outcomes in Ghana: Findings from Demographic and Health Surveys
	Jakobsen, Hilde	The good beating: Social norms supporting men's partner violence in Tanzania
	Sagoe, Dominic	Nonmedical anabolic-androgenic steroid use: Prevalence, attitudes, and social perception
	Eide, Helene Marie Kjærgård	Narrating the relationship between leadership and learning outcomes. A study of public narratives in the Norwegian educational sector.
2015	Wubs, Annegreet Gera	Intimate partner violence among adolescents in South Africa and Tanzania
H	Hjelmervik, Helene Susanne	Sex and sex-hormonal effects on brain organization of fronto-parietal networks
	Dahl, Berit Misund	The meaning of professional identity in public health nursing
	Røykenes, Kari	Testangst hos sykepleierstudenter: «Alternativ behandling»
	Bless, Josef Johann	The smartphone as a research tool in psychology. Assessment of language lateralization and training of auditory attention.
	Løvvik, Camilla Margrethe Sigvaldsen	Common mental disorders and work participation – the role of return-to-work expectations
	Lehmann, Stine	Mental Disorders in Foster Children: A Study of Prevalence, Comorbidity, and Risk Factors
	Knapstad, Marit	Psychological factors in long-term sickness absence: the role of shame and social support. Epidemiological studies based on the Health Assets Project.
2016	Kvestad, Ingrid	Biological risks and neurodevelopment in young North Indian children
V	Sælør, Knut Tore	Hinderløyper, halmstrå og hengende snører. En kvalitativ studie av håp innenfor psykisk helse- og rusfeltet.
	Mellingen, Sonja	Alkoholbruk, partilfredshet og samlivsstatus. Før, inn i, og etter svangerskapet – korrelerer eller konsekvenser?
	Thun, Eirunn	Shift work: negative consequences and protective factors

	Hilt, Line Torbjørnsen	The borderlands of educational inclusion. Analyses of inclusion and exclusion processes for minority language students
	Havnen, Audun	Treatment of obsessive-compulsive disorder and the importance of assessing clinical effectiveness
	Slåtten, Hilde	Gay-related name-calling among young adolescents. Exploring the importance of the context.
	Ree, Eline	Staying at work. The role of expectancies and beliefs in health and workplace interventions.
	Morken, Frøydis	Reading and writing processing in dyslexia
2016	Løvoll, Helga Synnevåg	Inside the outdoor experience. On the distinction between pleasant and interesting feelings and their implication in the motivational process.
H	Hjeltnes, Aslak	Facing social fears: An investigation of mindfulness-based stress reduction for young adults with social anxiety disorder
	Øyeflaten, Irene Larsen	Long-term sick leave and work rehabilitation. Prognostic factors for return to work.
	Henriksen, Roger Ekeberg	Social relationships, stress and infection risk in mother and child
	Johnsen, Iren	«Only a friend» - The bereavement process of young adults who have lost a friend to a traumatic death. A mixed methods study.
	Helle, Siri	Cannabis use in non-affective psychoses: Relationship to age at onset, cognitive functioning and social cognition
	Glabek, Mats	Workplace bullying and expulsion in working life. A representative study addressing prospective associations and explanatory conditions.
	Oanes, Camilla Jensen	Tilbakemelding i terapi. På hvilke måter opplever terapeuter at tilbakemeldingsprosedyrer kan virke inn på terapeutiske praksiser?
	Reknes, Iselin	Exposure to workplace bullying among nurses: Health outcomes and individual coping
	Chimhutu, Victor	Results-Based Financing (RBF) in the health sector of a low-income country. From agenda setting to implementation: The case of Tanzania

