

Personality and Social Psychology

Expectation of others' cooperation, efficacy beliefs, and willingness to sacrifice personal interests for the environment

ROUVEN DORAN¹  and DANIEL HANSS² 

¹Department of Psychosocial Science, University of Bergen, Bergen, Norway

²Department of Social Sciences, Darmstadt University of Applied Sciences, Darmstadt, Germany

Doran, R. & Hanss, D. (2022). Expectation of others' cooperation, efficacy beliefs, and willingness to sacrifice personal interests for the environment. *Scandinavian Journal of Psychology*, 63, 357–364.

This paper departs from the view that the social dilemma literature provides a useful framework to delineate possible barriers to the adoption of environmentally friendly lifestyles. One domain in which tensions between personal and collective interests might occur are travel decisions in the context of tourism, where it has been shown that even those people who are very committed to environmental practices at home tend to reduce respective commitments on vacation. Data from a cross-sectional survey $N = 771$ were analyzed to investigate if the expectation that other tourists travel environmentally friendly can in part explain individual travel decisions with environmental implications. Results showed that this expectation of others' cooperation added explanatory value in willingness to sacrifice (personal interests) for the environment. Further analyses indicated that the relationship between expectation of others' cooperation and willingness to sacrifice for the environment is sequentially mediated by collective efficacy and self-efficacy. We discuss implications for initiatives to gain a better understanding of travel decisions that can help limit environmentally harmful impacts.

Key words: sustainable tourism, expectation of others' cooperation, self-efficacy, collective efficacy, travel choices.

Rouven Doran, Department of Psychosocial Science, University of Bergen, Christiesgate 12, N-5015 Bergen, Norway. Tel: +47 55582336; E-mail: rouven.doran@uib.no.

INTRODUCTION

There is much to suggest that the potential to predict individual travel decisions based upon the perceived importance of environmental issues is limited. The extent to which people show environmental behavior in everyday life rarely matches how they conduct themselves on vacation (Cohen, Higham & Reis, 2013; Dolnicar & Grün, 2009; Ganglmair-Wooliscroft & Wooliscroft, 2017), a pattern that can be seen even among those with strong commitments to environmental practices (Barr, Shaw, Coles & Prillwitz, 2010; Juvan & Dolnicar, 2014). Why is it that many people appear to be reluctant to adjust their traveling in ways that could benefit the environment? This paper draws upon the psychological literature on cooperation in social dilemmas to illuminate how decisions between environmentally friendly and harmful tourism alternatives may be construed by individuals, and to help explain some of the potentially decisive individual-level factors in such decisions (see also Doran, Hanss & Larsen, 2015, 2017).

Social dilemmas can be broadly defined as situations in which short-term personal interests are in conflict with long-term collective interests (Van Lange, Joireman, Parks & Van Dijk, 2013). People can find themselves in this quandary when travel choices that promise the greatest personal return (such as money savings) jeopardize the interests of society as a whole (such as an intact natural environment). It may be personally tempting to opt for the cheapest price available considering that any potential saving in money can be used for other purposes at once, in spite of the choices made by others. However, if this choice were to be applied by everybody, society as whole would be worse off than in a scenario where all were to prioritize collective interests instead, for instance by paying extra for environmental protection. It is

social and temporal conflicts such as these that can be at the root of failed attempts to give an appropriate response to societal problems, including environmental degradation (Van Lange, Balliet, Parks & Van Vugt, 2014; Van Lange & Joireman, 2008).

Expectations towards the cooperative intentions of others can exert an important influence on decision making in social dilemmas (Balliet & Van Lange, 2013; Pletzer *et al.*, 2018). The present paper scrutinizes the robustness of these findings for individual travel decisions in the context of tourism, where individuals may encounter tensions between personal and collective interests.¹ A specific focus will be on whether a hypothesized relationship between expectation of others' cooperation and willingness to sacrifice (personal interests) for the environment can in part be explained by efficacy beliefs. This complements existing studies on individual-level factors that may shape a person's willingness to accept economic or other personal sacrifices when traveling, and the behavioral implications that could arise from this (Hedlund, 2011; Kantebacher, Hanna, Miller, Scarles & Yang, 2019; Rahman & Reynolds, 2016).

LITERATURE REVIEW

Expectation of others' cooperation

A large body of research has looked into psychological factors that can influence decisions in social dilemmas (for a review, see Van Lange *et al.*, 2013). Some of the well-studied individual-level factors are a person's social value orientation (Balliet *et al.*, 2009) and expectations of cooperation by others (Balliet & Van Lange, 2013). A common finding is that people with strong pro-

social (vs. pro-self) values are more likely to forgo short-term personal interests and to choose behavior alternatives that maximize collective interests. This can in part be accounted for by the assumption that pro-social values promote people's expectations that others will cooperate in maximizing collective interests (Pletzer *et al.*, 2018). Research focusing on real-world examples of large-scale social dilemmas generally highlights the role of these expectations in heightening the willingness to cooperate in resolving them (Staats, Wit & Midden, 1996), especially if information is provided to suggest that forgoing cooperation would entail negative consequences (Sen, Gürhan-Canlı & Morwitz, 2001). What is more, beliefs about other peoples' motives in social dilemmas tend to be more predictive of cooperative choices in situations, in which conflict between opposing interests is greater (Balliet & Van Lange, 2013).

Studies on decision making in the context of environmental issues have demonstrated that the expectation of others' cooperation predicts individual contributions. For example, Wiener and Doescher (1994) found that people are more likely to install load control devices for heating or cooling units in their households, if they expect that most utility users will do the same. This association turned out to be particularly strong among those who considered environmental preservation as important. Garvill (1999) found that the expectation that other car drivers are willing to reduce their inner-city car use predicted individual willingness to reduce own car use and to support car regulations aimed at lowering opportunities for inner-city car use. Gupta and Ogden (2009) identified expectation of others' cooperation as one of the individual characteristics (in addition to trust, in-group identity, and perceived efficacy) that distinguishes consumers who buy energy efficient light bulbs from those who do not. Additional support stems from research showing that the stated likelihood to engage in recycling is positively associated with citizens' estimates of their city's overall recycling participation rates (Lee, Prendergast, Yim & Choi, 2019). In line with this, we assume that when people choose among tourism alternatives, their willingness to sacrifice for the environment varies based on their expectation that other tourists make equal choices.

Hypothesis 1: Expectation of others' cooperation is positively associated with willingness to sacrifice for the environment.

Efficacy beliefs

Kerr (1996) distinguishes perceptions about the significance of individual contributions for accomplishing a desired collective outcome, termed self-efficacy of cooperative choices, from estimates about the probability that a group can jointly achieve this outcome, termed collective efficacy of cooperative choices. Since individual action cannot be expected to reach far enough to fully resolve environmental problems, this distinction can be applied to assess perceived mitigation potentials of travel decisions. Research in this respect demonstrates that the willingness to travel environmentally friendly as a tourist can be sensitive to perceptions incorporating both efficacy constructs, even if traveling in this manner would be more expensive and/or more time consuming (Doran *et al.*, 2015, 2017). These findings from the tourism domain are in line with studies with a broader

scope, showing that individuals who believe that they can contribute to sustainable development through their consumption decisions are more willing to choose environmentally and socially compatible products in everyday life (Hanss & Böhm, 2010; Hanss, Böhm, Doran & Homburg, 2016; see also Hamann & Reese, 2020). Here, we focus on efficacy beliefs as an explanatory factor in the association between expectation of others' cooperation and willingness to sacrifice for the environment. The rationale is that with an increasing number choosing to travel environmentally friendly as tourists, and the accumulated mitigation potentials from these choices, the (perceived) likelihood that invested efforts would go to waste may decrease.²

Hypothesis 2: Collective efficacy mediates the association between expectation of others' cooperation and willingness to sacrifice for the environment.

A shared feature of the above mentioned studies is their conceptualization of self-efficacy and collective efficacy as independent predictors; yet some research suggests a more complex relationship. Jugert, Greenaway, Barth, Büchner, Eisentraut and Fritsche (2016) demonstrated that when group identity is particularly salient, people's confidence in the effectiveness of collective action in an environmental context tends to increase. This was in turn associated with stronger pro-environmental intentions, for instance regarding tourism, but only when self-efficacy was perceived as high at the same time. Reese and Junge (2017) tested if beliefs about the efficacy of collective action for solving environmental issues depend on how difficult people think it is to adopt behaviors targeted at this goal. Individuals who were challenged to buy fruit and vegetables only if these had no plastic wrapping (medium difficulty) felt a stronger sense of collective efficacy than individuals who received the task to either carry their groceries home without plastic bags (low difficulty) or avoid bags and wrapping made out of plastic altogether (high difficulty). Collective efficacy was again positively related to both self-efficacy and intentions to reduce plastic consumption. Based on this evidence, we assume that the link between collective efficacy and willingness to sacrifice for the environment operates in part via self-efficacy.

Hypothesis 3: Collective efficacy and self-efficacy sequentially mediate the association between expectation of others' cooperation and willingness to sacrifice for the environment.

METHOD

Participants

A cross-sectional survey was distributed at the tourist information office and at popular tourist sites in the city of Bergen (Norway). In total, $N = 771$ individuals agreed to participate by filling in a paper-based questionnaire, $M_{age} = 42.67$, $SD_{age} = 16.78$. Participation was voluntary and not incentivized. Table 1 provides a detailed description of the sample.

Measures

In addition to items assessing socio-demographic characteristics, the questionnaire included instruments to measure the focal constructs of this

study (see below). An overview of these measures, including means and standard deviations for each item, are available in Table 2.

Expectation of others' cooperation. Participants indicated how much they agreed with two statements addressing the degree to which people expect other tourists to make an effort and/or sacrifices to preserve the environment. These items were inspired from measures used in previous research applying a social dilemma perspective to consumer choices (Gupta & Ogden, 2009; Wiener & Doescher, 1994). An additional statement represented the belief that environmental concerns exert an influence on other people's holiday choices. All three items were answered on a seven-point scale ranging from 1 = Don't agree to 7 = Fully agree.

Efficacy beliefs. Self-efficacy was measured with five items, one of which required re-coding so that higher scores indicated a stronger sense of self-efficacy (answer scale: 1 = Don't agree, 7 = Fully agree). Collective efficacy was measured with six items that were formulated in a way that agreement indicated a stronger sense of collective efficacy (answer scale: 1 = Don't agree, 7 = Fully agree). Items were formulated in line with the scope of this study, some of which were adapted from existing measures on efficacy beliefs (Doran *et al.*, 2015; Homburg & Stolberg, 2006). For an overview of different approaches to operationalizing efficacy beliefs in an environmental context, see Hanss *et al.* (2016) and Hamann and Reese (2020).

Willingness to sacrifice for the environment. A person's willingness to sacrifice for the environment signifies the extent to which someone is inclined to prioritize environmental preservation ahead of their short-term personal interests (Coy, Farrell, Gilson, Davis & Le, 2013; Davis, Le & Coy, 2011). Participants in this study were told to imagine their next holiday trip, followed by statements referencing an action that would

neglect personal interests for the sake of the environment, for instance in terms of spending additional time when planning their holidays. One of the items required re-coding so that higher scores consistently indicated a stronger willingness to sacrifice for the environment. For each of the presented statements, participants indicated to what degree they agreed on a seven-point scale ranging from 1 = Don't agree to 7 = Fully agree.

Data handling

An initial screening of the data suggested that internal consistencies of the construct measures were acceptable, except for items measuring willingness to sacrifice for the environment and self-efficacy, which had Cronbach's alpha values below the recommended 0.70 (Nunnally, 1978). Excluding the reverse coded items from each of the two construct measures resulted in acceptable values of $\alpha = 0.76$ and $\alpha = 0.80$, respectively. For each construct, a composite measure was computed by averaging scores on the respective items. Table 3 lists descriptive statistics, internal consistencies, and bivariate correlations between these measures. Missing data in the multivariate analyses were addressed through listwise deletion procedures available in the Process macro for SPSS (Hayes, 2018).

RESULTS

The data were analyzed in two consecutive steps. First, we tested a model of sequential mediation (Model 6; Hayes, 2018) with expectation of others' cooperation as the independent variable, collective efficacy as the first mediator, self-efficacy as the second mediator, and willingness to sacrifice as the dependent variable. Indirect effects were computed to estimate the relative contributions of each mediator in the sequential mediation model (Hayes, 2009). Second, we tested a model of parallel moderation (Model 2; Hayes, 2018), which incorporated expectation of others' cooperation as an independent variable, self- and collective efficacy both as moderators, and willingness to sacrifice as a dependent variable. All analyses were conducted with 5,000 bootstrap samples and 99% percentile bootstrap confidence intervals; statistically significant associations are indicated by confidence intervals that fail to include zero (Hayes, 2018).

Testing of the hypothesized model: Sequential mediation

The total effect (c) of expectation of others' cooperation on willingness to sacrifice was found to be significant. Moreover, the direct effect (c') of expectation of others' cooperation continued to be statistically significant when the analyses controlled for the two suspected mediators (collective efficacy and self-efficacy). This means that those who reported stronger expectations that other tourists contribute to environmental preservation also tended to express a stronger willingness to sacrifice personal interests, which supports our initial hypothesis. A complete overview of the direct effects that were accounted for by the model can be found in Table 4.

Table 5 summarizes the indirect effects that were tested in the hypothesized model, which overall, are in accordance with the assumption that efficacy beliefs are relevant for explaining the association between expectation of others' cooperation and willingness to sacrifice for the environment.³ A more detailed inspection of the results indicated a significant indirect effect on willingness to sacrifice via collective efficacy only but not via self-efficacy only. There was furthermore a significant indirect effect through first collective and then self-efficacy, which can be

Table 1. Sample profile

	<i>n</i>	%
Gender		
Female	417	54.1
Male	354	45.9
Age		
18–24	120	15.6
25–34	199	25.8
35–44	119	15.4
45–54	98	12.7
55–64	127	16.5
≥65	106	13.7
Accommodation ^a		
Camping facility	78	10.1
Private pension	51	6.6
HI hostel	38	4.9
Hotel	263	34.1
Cruise ship	191	24.8
Not specified	149	19.3
Continent ^b		
Europe	491	63.7
North America	146	18.9
South America	16	2.1
Oceania	45	5.8
Asia	68	8.8
Tourist type		
International	724	93.9
Domestic	38	4.9

Notes: Total percentages of responses within each category (separated by empty rows) do not always add to 100 because of few missing values ($n = 2$ for age, $n = 1$ for accommodation, $n = 5$ for continent, $n = 9$ for tourist type).

^aParticipants reported on their last night accommodation.

^bParticipants reported on their current place of residence.

Table 2. Overview of item measures

Item wording	<i>n</i>	<i>M</i>	<i>SD</i>
EXP1 In time, most tourists will make an effort to help protect the environment. ^b	748	4.18	1.44
EXP2 Most tourists are willing to make sacrifices (e.g. accepting additional costs) to help mitigate environmental problems. ^b	747	3.47	1.45
EXP3 I am confident that environmental concerns influence the choices of other tourists when they plan a holiday.	746	3.43	1.45
CE1 I am confident that we as tourists can together contribute to solving global environmental challenges. ^c	742	4.50	1.49
CE2 We as tourists can help solving the climate crisis effectively, even if the external conditions are unfavourable. ^c	738	4.21	1.49
CE3 I am confident that we as tourists can together do something about mitigating global climate change. ^c	735	4.43	1.48
CE4 By choosing products and services with eco-labels (e.g. climate-friendly), we as tourists can put pressure on the tourism industry to meet these demands.	736	4.89	1.50
CE5 By boycotting services and products that are considered environmentally harmful, we as tourists can make a difference when it comes to environmental protection.	740	4.90	1.57
CE6 By avoiding air travel (or purchasing carbon offsets for flights that cannot be avoided), we as tourists have the capacity to make a difference when it comes to global climate change.	741	4.28	1.64
SE1 As a tourist I can contribute my share to help mitigate global climate change.	762	4.92	1.43
SE2 There is not much an individual tourist (like me) can do about the sectors negative impact on the environment. ^a	757	4.23	1.68
SE3 By avoiding CO ₂ intensive transportation (e.g. flying), I can make a meaningful contribution for tackling the problem of global climate change.	759	4.25	1.56
SE4 By choosing products and services with eco-labels (e.g. climate-friendly), I as a tourist can help preserve the environment.	760	5.00	1.45
SE5 By minimizing air travel (e.g. favour closer destinations over distant ones), I can do something about negative environmental impacts stemming from tourism.	761	4.34	1.64
WTS1 I am willing to spend extra time when planning my holiday in order to protect the environment.	748	4.40	1.46
WTS2 I am not willing to choose products and services with eco-labels (e.g. climate-friendly), if these are more expensive than conventional alternatives. ^a	749	4.40	1.65
WTS3 I am willing to accept personal sacrifices (e.g. paying extra), if this benefits the society as a whole (e.g. remedy for global climate change).	748	4.56	1.42
WTS4 I would sign a petition that supports legislative restrictions on the use of CO ₂ intensive transportation (e.g. flying).	746	4.34	1.77

Notes: Means and standard deviations for items employed to measure the focal constructs. Items were measured on a seven-point response scale, anchored at 1 (Don't agree) and 7 (Fully agree). EXP = Expectation of others' cooperation; CE = Collective efficacy; SE = Self-efficacy; WTS = Willingness to sacrifice for the environment.

^aReverse coded.

^bAdapted from Wiener and Doescher (1994) and Gupta and Ogden (2009).

^cAdapted from Homburg and Stolberg (2006) and Doran *et al.* (2015).

Table 3. Overview of composite measures

	<i>n</i>	<i>M</i>	<i>SD</i>	α	1	2	3	4
1. Expectation of others' cooperation	749	3.70	1.23	0.81	-			
2. Collective efficacy	744	4.53	1.26	0.91	0.39***	-		
3. Self-efficacy	763	4.63	1.21	0.80	0.30***	0.63***	-	
4. Willingness to sacrifice for the environment	751	4.44	1.28	0.76	0.35***	0.54***	0.58***	-

Notes: The table shows Pearson correlations.

*** $p < 0.001$.

interpreted as support for sequential mediation. All indirect effects were contrasted pairwise to assess their relative explanatory contributions; for more details, see Table 5. For these contrasts, a confidence interval that does not encompass the value zero, indicates that the two respective indirect effects statistically differ from one another, in the direction defined by the contrast; this means that they differ in their unique ability to account for variance in the total effect in the hypothesized model (Hayes, 2018; see also Preacher & Hayes, 2008).

Testing of an alternative model: Parallel moderation

Some research indicates that information on the rate of cooperation that can be expected has more impact on decisions in large-scale social dilemmas when there is low perceived efficacy; for instance,

when expert opinion states that any further partaker in a consumer boycott would have no significant impact on its overall outcome (Sen *et al.*, 2001). Table 6 displays results from an alternative model including the focal constructs, which was computed to improve confidence in the mediation interpretation. There was no empirical support of an interaction effect between expectation of others' cooperation and collective efficacy, nor did the relationship between expectation of others' cooperation and willingness to sacrifice for the environment vary as a function of self-reported self-efficacy. For related findings in the context of recycling, see Lee *et al.* (2019).

DISCUSSION

There is some plausibility that the willingness to forgo personal interests for the environment – as a tourist – can be hampered by

Table 4. Summary of direct effects

Direct effects	Collective efficacy			Self-efficacy			Willingness to sacrifice for the environment		
	B (SE)	BootLLCI	BootULCI	B (SE)	BootLLCI	BootULCI	B (SE)	BootLLCI	BootULCI
Constant	3.10 (0.14)	2.75	3.45	1.83 (0.14)	1.46	2.20	0.77 (0.17)	0.34	1.20
Expectation of others' cooperation	0.39 (0.03)	0.30	0.48	0.06 (0.03)	-0.02	0.13	0.15 (0.03)	0.06	0.23
Collective efficacy				0.57 (0.03)	0.49	0.64	0.26 (0.04)	0.16	0.36
Self-efficacy							0.42 (0.04)	0.32	0.53
R ²	0.15			0.39			0.42		
df	(1, 731)			(2, 730)			(3, 729)		
F	127.98***			234.91***			173.31***		

Notes: The table shows direct effects that were tested as part of the sequential mediation model (Model 6; Hayes, 2018) based on 5,000 bootstrap samples and 99% percentile bootstrap confidence intervals. B = unstandardized regression coefficient; SE = standard error; BootLLCI = bootstrapping lower limit confidence interval; BootULCI = bootstrapping upper limit confidence interval. ***p < 0.001.

Table 5. Mediation analyses testing indirect effects for the relationship between expectation of others' cooperation and willingness to sacrifice for the environment

	B	SE	BootLLCI	BootULCI
Total effect (c)	0.37	0.04	0.27	0.46
Direct effect (c')	0.15	0.03	0.06	0.23
Indirect effects (total)	0.22	0.03	0.15	0.30
Indirect effects (specific)				
EXP → CE → WTS (Ind1)	0.10	0.02	0.05	0.17
EXP → SE → WTS (Ind2)	0.02	0.01	-0.01	0.06
EXP → CE → SE → WTS (Ind3)	0.09	0.02	0.06	0.14
Indirect effects (contrasts)				
Ind1 versus Ind2	0.08	0.03	0.01	0.15
Ind1 versus Ind3	0.01	0.03	-0.07	0.08
Ind2 versus Ind3	-0.07	0.02	-0.14	-0.02

Notes: Sequential mediation model (Model 6; Hayes, 2018) based on 5,000 bootstrap samples and 99% percentile bootstrap confidence intervals. B = unstandardized regression coefficient; SE = standard error. BootLLCI = bootstrapping lower limit confidence interval; BootULCI = bootstrapping upper limit confidence interval. EXP = Expectation of others' cooperation; CE = Collective efficacy; SE = Self-efficacy; WTS = Willingness to sacrifice for the environment.

concerns that these sacrifices are uncommon. Kantenbacher et al. (2019) illustrate this point with regard to the acceptance of personal sacrifices in consumption patterns to make up for the opportunity to travel on holiday by plane. Specifically, they showed that people who believed that their own contributions would be without impact (considering the actions of others) were also less willing to cut back on and/or to change their consumption activities. Complementing this finding, in the present study, participants with strong (vs. weak) expectations that other tourists show efforts to help preserve the environment were more likely to plan on choosing environmentally friendly travel options despite the associated costs. This willingness to sacrifice personal interests increased together with efficacy beliefs, possibly implying that such expectations can strengthen the perception that people can make a difference for safeguarding the environment, also when traveling as tourists. This matches observations from

Table 6. Moderation analyses testing for independent moderator effects on the relationship between expectation of others' cooperation and willingness to sacrifice for the environment

	B	SE	BootLLCI	BootULCI
Constant	4.46	0.04	4.36	4.56
Predictor				
EXP	0.15	0.03	0.07	0.24
Moderators				
CE	0.24	0.04	0.14	0.34
SE	0.43	0.04	0.33	0.53
Interactions				
EXP × CE	-0.05	0.03	-0.12	0.02
EXP × SE	0.01	0.03	-0.06	0.09
R ²	0.42			
df	(5, 727)			
F	105.17***			

Notes: Parallel moderation model (Model 2; Hayes, 2018) based on 5,000 bootstrap samples and 99% percentile bootstrap confidence intervals, variables that define products were mean-centered. B = unstandardized regression coefficient; SE = standard error. BootLLCI = bootstrapping lower limit confidence interval; BootULCI = bootstrapping upper limit confidence interval. EXP = Expectation of others' cooperation; CE = Collective efficacy; SE = Self-efficacy. ***p < 0.001.

focus groups suggesting that perceiving others to be inactive with regard to promoting sustainable forms of tourism can make people feel disempowered to change their own behavior (Miller, Rathouse, Scarles, Holmes & Tribe, 2010).

Research shows that if people believe that they can handle their own life circumstances, and that they can personally contribute to improving societal conditions, they also tend to believe that society as a whole can achieve desirable social change (Fernández-Ballesteros, Díez-Nicolás, Caprara, Barbaranelli & Bandura, 2002). In other words, efficacy beliefs regarding individual action could be an antecedent of efficacy beliefs regarding collective action; an alternative model that assumed reversed directionality was less supported by the data. When it comes to beliefs that are specific about the ability to limit negative environmental impacts from tourism, however, the relationship might be reverse. Consistent with this assumption, we

found that the association between collective efficacy and willingness to sacrifice personal interests was in part explained by self-efficacy. Perhaps, subjective assessments of collective efficacy are interpreted as hints that help individuals estimate the chances to which giving up on personal benefits contributes to desired change on a larger scale; for instance, whether opting for an environmentally friendly (but possibly more expensive) traveling alternative would make an actual difference when it comes to the overall environmental impacts from tourism. Although cross-sectional data are insufficient to draw causal inferences, such an interpretation is supported by experimental evidence in other domains of environmentally-relevant behaviors (Jugert *et al.*, 2016; Reese & Junge, 2017).

With regard to their relative explanatory contributions, the indirect effect via collective and self-efficacy was comparable to that via collective efficacy alone (see Table 5). It can be argued that our measure of self-efficacy did not comprehensively capture the multifacetedness of the construct, and that a more faceted operationalization may result in a higher explanatory value. Therefore, a meaningful next step forward is to broaden the scope towards other facets of efficacy beliefs that could account for additional variance in the hypothesized model. Relevant literature on the subject suggests that beliefs on whether acting environmentally friendly can motivate others to preserve the environment (i.e., indirect, social impact) can be distinguished from beliefs that are concerned with the ability to have a direct impact on the environment. This distinction has been empirically demonstrated in regards to individual behavior (e.g., choosing specific products as a consumer; Hanss & Böhm, 2010) as well as for actions that are executed as part of a social entity (e.g., being a member in an environmental initiative; Hamann & Reese, 2020). Including a broader spectrum of efficacy beliefs, and disentangling their relative contribution as potentially mediating variables, could yield useful insights into the processes by which expectation of others' cooperation may determine the willingness to accept higher personal costs in an attempt to safeguard the environment.

In addition, there is room to explore whether alternative mechanisms can account for the fact that tourists seem more inclined to travel in an environmentally friendly manner, if they believe that other tourists contribute their share. Research shows that public support for climate-oriented aviation policies is to some extent shaped by the desire to secure fairness, that is, whether the associated costs are distributed in relative proportion to the level of responsibility for bringing about the problem in question (Kantenbacher, Hanna, Cohen, Miller & Scarles, 2018). It could be speculated that the expectation, that other tourists contribute their share, feeds into such a sense of perceived fairness. And this in turn may strengthen the willingness to accept personal sacrifices to reduce environmentally harmful impacts from tourism. Testing this assumption, preferably by means of longitudinal study designs, would enhance our understanding on how an expectation of others' cooperation relates to individual travel decisions.

An ostensible limitation to the current study is that it provides only a snapshot of situations in which tourists may face tensions between personal and collective interests. Including a broader selection of possible sacrifices, that tourists could make to reduce

environmentally harmful impacts, would provide a broader picture. It also seems worthwhile to consider situations where traveling in an environmentally friendly manner is not primarily construed as a sacrifice. Previous research, in fact, suggests that ethical tourism can also be driven through hedonic considerations. Malone, McCabe and Smith (2014) found that the anticipation of positive emotions was used to rationalize and reinforce intentions to choose ethical alternatives, including courses of action that are about environmental protection; likewise, Strzelecka, Nisbett and Woosnam (2017) identified hedonic values as a driving factor for the motivation to travel in the context of conservation volunteerism. Expectation of others' cooperation could therefore be less influential when consumers anticipate hedonic consequences from traveling in an environmentally friendly way, hence reducing the conflict between personal and collective interests. This accords with literature that the extent by which beliefs about other peoples' motives can be used to predict cooperation in social dilemmas depends also (though not exclusively) on the amount of conflict in the situation (Balliet & Van Lange, 2013).

CONCLUSION

Tourism activities can impact the environment in many ways, including yet not restricted to greenhouse gas emissions (Gössling & Peeters, 2015; Lenzen, Sun, Faturay, Ting, Geschke & Malik, 2018). Our study suggests that the willingness to forgo personal benefits for the sake of the environment increases together with the expectation that other tourists do the same, and that this link can partly be explained through differences in efficacy beliefs. Moreover, tourists' estimates about their collective ability to preserve the environment (collective efficacy) might have a part in shaping perceptions about their individual ability to help preserve the environment (self-efficacy). One promising avenue for future research is to explore whether similar patterns can be identified among the suppliers of tourism services, specifically when changing established practices could result in a competitive disadvantage. Research indicates that having a sense of efficacy constitutes one characteristic associated with managers who incorporate sustainability principles into their businesses (Sampaio, Thomas & Font, 2012), and that the strength of such perceptions might be shaped through observations made in the social environment (Kornilaki, Thomas & Font, 2019). There is reason to assume that managers may regard adopting these principles as insignificant unless they expect other managers to follow their example. Understanding individual-level factors that shape the willingness to sacrifice for the environment, as consumers or as suppliers of tourism services, has thus the potential to support sustainable tourism initiatives.

ACKNOWLEDGEMENTS

This research was supported by the Meltzer foundation. We thank Svein Larsen and Torvald Øgaard for their comments on an earlier draft of this manuscript. Preliminary analyses were presented at the 3rd international workshop in the Black Forest, 28th June – 1st July 2016, Freiburg, Germany. Theme: “Desirable Transport Futures”.

ETHICS STATEMENT

This research complied with the general guidelines for research ethics by the Norwegian National Committee for Research Ethics in the Social Sciences and the Humanities (NESH). Formal approval by an ethics committee was not required as per applicable institutional guidelines and regulations.

ENDNOTES

¹ As Dolnicar et al. (2019) noted: "The difficulty with changing tourist behavior is that tourism is set in a highly hedonic context characterized by relaxation and enjoyment, much in contrast to sacrifices made for the benefit of the planet as a whole (p. 241).

² See Kantenbacher et al. (2019) and Miller et al. (2010) for related evidence.

³ There is evidence that individuals are more likely to reciprocate other group members' contributions to collective interests in social dilemmas when these are perceived to be similar rather than dissimilar to oneself (Parks et al., 2001). To further parse out the hypothesized associations, we reran the statistical analyses controlling for measures capturing judgments about oneself and average tourists on an attitudinal and a moral dimension. Results regarding the hypothesized model (sequential mediation) were similar as those reported in this paper; the results also remained robust when adding these covariates to the alternative model (parallel moderation). For reasons of parsimony, we only report the analyses that focused overtly on the role of efficacy beliefs in explaining the relationship between expectation of others' cooperation (e.g., by making financial sacrifices to help mitigate environmental problems) and willingness to sacrifice for the environment (e.g., paying extra for the benefit of society as a whole).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

- Balliet, D., Parks, C. & Joireman, J. (2009) Social value orientation and cooperation in social dilemmas: A meta-analysis. *Group Processes & Intergroup Relations*, 12, 533–547.
- Balliet, D. & Van Lange, P.A.M. (2013) Trust, conflict, and cooperation: A meta-analysis. *Psychological Bulletin*, 139, 1090–1112.
- 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.
- Cohen, S.A., Higham, J.E.S. & Reis, A.C. (2013) Sociological barriers to developing sustainable discretionary air travel behavior. *Journal of Sustainable Tourism*, 21, 982–998.
- Coy, A.E., Farrell, A.K., Gilson, K.P., Davis, J.L. & Le, B. (2013) Commitment to the environment and student support for "green" campus initiatives. *Journal of Environmental Studies and Sciences*, 3, 49–55.
- Davis, J.L., Le, B. & Coy, A.E. (2011) Building a model of commitment to the natural environment to predict ecological behavior and willingness to sacrifice. *Journal of Environmental Psychology*, 31, 257–265.
- 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.
- Dolnicar, S., Knezevic-Cvelbar, L. & Grün, B. (2019) A sharing-based approach to enticing tourists to behave more environmentally friendly. *Journal of Travel Research*, 58, 241–252.
- Doran, R., Hanss, D. & Larsen, S. (2015) Attitudes, efficacy beliefs, and willingness to pay for environmental protection when traveling. *Tourism and Hospitality Research*, 15, 281–292.
- Doran, R., Hanss, D. & Larsen, S. (2017) Intentions to make sustainable tourism choices: Do value orientations, time perspective, and efficacy beliefs explain individual differences? *Scandinavian Journal of Hospitality and Tourism*, 17, 223–238.
- Fernández-Ballesteros, R., Díez-Nicolás, J., Caprara, G.V., Barbaranelli, C. & Bandura, A. (2002) Determinants and structural relation of personal efficacy to collective efficacy. *Applied Psychology: An International Review*, 51, 107–125.
- Ganglmair-Wooliscroft, A. & Wooliscroft, B. (2017) Ethical behaviour on holiday and at home: Combining behaviour in two contexts. *Journal of Sustainable Tourism*, 25, 589–604.
- Garvill, J. (1999). Choice of transportation mode: Factors influencing drivers' willingness to reduce personal car use and support car regulations. In Foddy, M., Smithson, M., Schneider, S. & Hogg, M. (Eds.), *Resolving social dilemmas: Dynamic, structural, and intergroup aspects* (pp. 263–279). Philadelphia, PA: Psychology Press.
- Gössling, S. & Peeters, P. (2015) Assessing tourism's global environmental impact 1900–2050. *Journal of Sustainable Tourism*, 23, 639–659.
- 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.
- Hamann, K.R.S. & Reese, G. (2020) My influence on the world (of others): Goal efficacy beliefs and efficacy affect predict private, public, and activist pro-environmental behavior. *Journal of Social Issues*, 76, 35–53.
- 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*, 24, 357–370.
- Hayes, A.F. (2009) Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408–420.
- Hayes, A.F. (2018) *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*, 2nd edition. New York, NY: Guilford Press.
- 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.
- Homburg, A. & Stolberg, A. (2006) Explaining pro-environmental behavior with a cognitive theory of stress. *Journal of Environmental Psychology*, 26, 1–14.
- Jugert, P., Greenaway, K.H., Barth, M., Büchner, R., Eisentraut, S. & Fritsche, I. (2016) Collective efficacy increases pro-environmental intentions through increasing self-efficacy. *Journal of Environmental Psychology*, 48, 12–23.
- Juvan, E. & Dolnicar, S. (2014) The attitude-behaviour gap in sustainable tourism. *Annals of Tourism Research*, 48, 76–95.
- Kantenbacher, J., Hanna, P., Cohen, S., Miller, G. & Scarles, C. (2018) Public attitudes about climate policy options for aviation. *Environmental Science & Policy*, 81, 46–53.
- Kantenbacher, J., Hanna, P., Miller, G., Scarles, C. & Yang, J. (2019) Consumer priorities: What would people sacrifice in order to fly on holidays? *Journal of Sustainable Tourism*, 27, 207–222.
- Kerr, N.L. (1996) "Does my contribution really matter?": Efficacy in social dilemmas. *European Review of Social Psychology*, 7, 209–240.
- Kornilaki, M., Thomas, R. & Font, X. (2019) The sustainability behaviour of small firms in tourism: The role of self-efficacy and contextual constraints. *Journal of Sustainable Tourism*, 27, 97–117.
- Lee, A.L.Y., Prendergast, G.P., Yim, F.H.K. & Choi, L. (2019) A social dilemma perspective on recycling. *Journal of Applied Social Psychology*, 49, 585–595.
- Lenzen, M., Sun, Y.-Y., Faturay, F., Ting, Y.-P., Geschke, A. & Malik, A. (2018) The carbon footprint of global tourism. *Nature Climate Change*, 8, 522–528.

- Malone, S., McCabe, S. & Smith, A.P. (2014) The role of hedonism in ethical tourism. *Annals of Tourism Research*, 44, 241–254.
- Miller, G., Rathouse, K., Scarles, C., Holmes, K. & Tribe, J. (2010) Public understanding of sustainable tourism. *Annals of Tourism Research*, 37, 627–645.
- Nunnally, J.C. (1978) *Psychometric theory*, 2nd edition. New York, NY: McGraw-Hill.
- 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.
- Pletzer, J.L., Balliet, D., Joireman, J., Kuhlman, D.M., Voelpel, S.C. & Van Lange, P.A.M. (2018) Social value orientation, expectations, and cooperation in social dilemmas: A meta-analysis. *European Journal of Personality*, 32, 62–83.
- Preacher, K.J. & Hayes, A.F. (2008) Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.
- 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.
- Reese, G. & Junge, E. (2017) Keep on rockin' in a (plastic-)free world: Collective efficacy and pro-environmental intentions as a function of task difficulty. *Sustainability*, 9, 200. <https://doi.org/10.3390/su9020200>.
- Sampaio, A.R., Thomas, R. & Font, X. (2012) Why are some engaged and not others? Explaining environmental engagement among small firms in tourism. *International Journal of Tourism Research*, 14, 235–249.
- Sen, S., Gürhan-Canli, Z. & Morwitz, V. (2001) Withholding consumption: A social dilemma perspective on consumer boycotts. *Journal of Consumer Research*, 28, 399–417.
- Staats, H.J., Wit, A.P. & Midden, C.Y.H. (1996) Communicating the greenhouse effect to the public: Evaluation of a mass media campaign from a social dilemma perspective. *Journal of Environmental Management*, 46, 189–203.
- Strzelecka, M., Nisbett, G.S. & Woosnam, K.M. (2017) The hedonic nature of conservation volunteer travel. *Tourism Management*, 63, 417–425.
- Van Lange, P.A.M., Balliet, D., Parks, C.D. & Van Vugt, M. (2014) *Social dilemmas: The psychology of human cooperation*. New York, NY: Oxford University Press.
- 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.
- Van Lange, P.A.M., Joireman, J., Parks, C.D. & Van Dijk, E. (2013) The psychology of social dilemmas: A review. *Organizational Behavior and Human Decision Processes*, 120, 125–141.
- Wiener, J.L. & Doescher, T.A. (1994) Cooperation and expectations of cooperation. *Journal of Public Policy & Marketing*, 13, 259–270.

Received 21 November 2020, Revised 20 December 2021, accepted 10 February 2022