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Why Not Take the Train Instead?

On the Effectiveness of a Grant to Promote Pro- environmental Travel Behaviour

E. J. Terpstra

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Department of Psychology

University of Groningen

Examiner/Daily supervisor:

Ellen van der Werff

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Abstract

Air travel contributes to many environmental problems. Yet, research into its substitution with more sustainable alternatives remains limited. Therefore, the current study examined if a green travel grant, that was either framed as benefitting the recipient financially or as benefitting the environment, effectively encouraged pro-environmental travel behaviour. It was tested if the grant, regardless of its framing, increased people's intention to travel sustainably in the short-term, i.e., when the grant was available. Moreover, this study examined if the financially framed grant undermined people's intrinsic motivation to travel sustainably (*crowding-out effect*), and lowered their intention to do so in the long-term, i.e., when the grant was no longer available; and if the environmentally framed grant enhanced people's intrinsic motivation to travel sustainably (*crowding-in effect*), and strengthened their intention to do so in the long-term. Lastly, it was studied if people's financial motive for choosing air travel influenced the effectiveness of the grant. In total, 300 first-year psychology students participated in the online experiment. The results revealed that the grant, regardless of its framing, increased their intentions to travel sustainably in the short-term. Contrary to expectations, however, the financially framed grant increased people's intrinsic motivation to travel sustainably, whereas the environmentally framed grant did not affect intrinsic motivation. The grant, regardless of its framing, did not affect the intention to travel sustainably in the long-term, and people's financial motive for choosing air travel did not influence the grant's effectiveness. These findings demonstrate that implementing a grant is effective in the short-term, when it is available, but not in the long-term, when it is not.

Keywords: financial incentive, green travel grant, pro-environmental travel, sustainable travel, air travel, intrinsic motivation, crowding-out effect, crowding-in effect

Why Not Take the Train Instead?

On the Effectiveness of a Grant to Promote Pro-environmental Travel Behaviour

Air travel is damaging the environment and our climate. Currently, it accounts for 2-2,5% of the total annual CO₂ emissions worldwide (Air Transport Action Group [ATAG], 2020). Additionally, air travel emits other greenhouse gasses (e.g., nitrogen oxide) and negatively affects the environment by increasing the concentration of pollutants in the atmosphere (Lee et al., 2020). In fact, it is estimated that air travel has contributed to human-induced global warming by approximately 4% to date (Klöwer et al., 2021). This contribution can in large be attributed to a small group of frequent fliers (Gössling & Humpe, 2020). In particular, less than 1% of the world's most frequent fliers are responsible for more than half of the total global greenhouse gas emissions from passenger flights. In contrast, it is estimated that 89% of the world's population never travels by plane at all. This is also reflected in the per capita CO₂ emissions from air travel per country (Ritchie, 2020). Notably, developing countries like Angola, Madagascar and Belarus only contribute around 2-4 kg of CO₂ per person, whereas the United States contributes 583 kg of CO₂ per person, Australia 878 kg and the United Arab Emirates top the list at 1949 kg. Moreover, due to a growing middle class in countries with emerging economies, the impact of air travel on the environment is only expected to further increase, as more people acquire the financial resources to afford air travel (Graham & Metz, 2017; Oxley & Jain, 2015). Already, the number of passenger flights has increased fourteenfold from an estimated 310 million in the 1970s to 4.3 billion in 2018 (International Air Transport Association, 2020). Although the COVID-19 pandemic temporarily halted this growth in aviation (Gössling & Humpe, 2020), research has found that shock events are often overcome and that the growth trajectory is likely to continue afterwards (Oxley and Jain, 2015). Hence, the negative impact that air travel has on the environment and our climate is expected to increase over time.

However, in order to curb climate change, air travel needs to be reduced. One way to achieve this reduction is by substituting air travel with more pro-environmental modes of travel (e.g., travelling by train or bus). This substitution can be encouraged through top-down measures such as governmental- or institutional policies aimed at restricting air travel. For example, through the implementation of a flight tax. Yet, although governments recognise the importance of reducing the environmental impact of air travel, they also acknowledge its economic benefits and people's desire to travel by plane (Bows & Anderson, 2007; McDonald et al., 2015). Due to these conflicting interests, governments and institutions remain hesitant to implement push measures that restrict people's freedom to choose air

travel. Fortunately, they do seem willing to implement pull measures that make pro-environmental travel options more attractive; e.g., a discount on train tickets. The question remains, however, whether pull measures can effectively reduce air travel by promoting the adoption of more pro-environmental modes of travel.

The current study will examine whether a green travel grant can effectively encourage pro-environmental travel behaviour. Specifically, this study will try to answer the following questions: 1.) Is implementing a green travel grant that aims to promote pro-environmental travel behaviour effective in the short-term? 2.) How does the implementation of this grant affect people's intrinsic motivation to travel sustainably? 3.) How does the implementation of this grant affect people's intention to adopt pro-environmental travel behaviour in the long-term? 4.) What role does the strength of people's financial motive for choosing air travel play in the effectiveness of this grant?

Theoretical Background

One of the most common strategies to promote the adoption of pro-environmental behaviours (PEBs) is the use of financial incentives. Financial incentives are monetary benefits or drawbacks (e.g., subsidies or fines) that can be implemented to encourage new behaviours. They are frequently used in the case of PEBs because these behaviours are often considered to be more costly or more effortful than their less environmental counterparts. Consequently, making the adoption of PEBs more difficult. This especially holds true for getting people to choose more pro-environmental modes of travel over air travel, as changing travel behaviours is found to be particularly difficult (Kaiser & Keller, 2001). People simply find train travel too expensive in comparison to air travel (e.g., Higham et al., 2016), since train tickets are easily twice the cost of plane tickets (NOS, 2023). Thus, offering a financial incentive can compensate for this drawback by making the sustainable travel option more cost-competitive. In turn, making the adoption of pro-environmental travel behaviour more likely.

Nevertheless, the literature on the effectiveness of financial incentives to promote PEBs remains divided. One side of the literature shows that it can be an effective strategy in the short-term, i.e., when the incentive is in place, because financial incentives can tap into people's extrinsic motivation. Extrinsic motivation is the drive to engage in a behaviour because of its external rewards or to avoid punishments (Deci & Ryan, 1985). Indeed, a recent meta-analysis showed that implementing financial incentives effectively encouraged the adoption of energy conservation behaviours in the short-term (Sloot & Scheibehenne, 2022). Another meta-analysis corroborated these outcomes and found that financial incentives

generally promote people's engagement in various PEBs, including the use of public transportation (Maki et al., 2016). In fact, there is extensive research demonstrating that financial incentives can effectively promote the short-term substitution of car use with the use of public transportation. One of the first studies looked at the effectiveness of a one-month free bus ticket to encourage students to travel to university by bus instead of by car (Fujii & Kitamura, 2003). Although not all results were significant, they showed a trend supporting the idea that financial incentives can effectively stimulate the choice for pro-environmental travel options. These findings were later corroborated and strengthened by other studies. Both Bamberg (2006) and Thøgersen (2009) also provided people with a free public transportation card that could be used for a limited period of time. These financial incentives proved effective, as individuals who had access to them used public transportation more often than those who did not. Furthermore, although scarce, there is some initial evidence that implementing financial incentives can also effectively promote the substitution of air travel with more pro-environmental modes of travel. Notably, Dällenbach (2020) found that students chose train travel over air travel more often, when they received a sustainable travel grant that covered part of their travel expenses. Thus, based on the literature described above, providing people with a financial incentive can be an effective strategy to promote pro-environmental travel behaviour in the short-term.

A contradicting body of literature points out that implementing financial incentives to promote PEBs may, in fact, not be effective. Namely, because financial incentives generally fail to uphold or promote long-term changes in behaviour once the incentive is no longer available. This is believed to be the case because financial incentives tend to undermine the intrinsic motivation for PEBs. Intrinsic motivation is the internal drive to either undertake an activity because it is fun to do so in and of itself (i.e., enjoyment-based), or because it is *the right thing to do* (i.e., obligation-based; Lindenberg, 2001). Although some people may find engaging in PEBs inherently enjoyable, these behaviours are often not very comfortable and require more effort than their less environmental counterparts. Therefore, PEBs are generally considered to be related to obligation-based intrinsic motivation as opposed to enjoyment-based intrinsic motivation (Van der Werff et al., 2013). This also means that the positive feelings people experience as a consequence of behaving sustainably are less the result of enjoying the PEB in and of itself, but more the result of doing what is morally right and contributing to an important cause, i.e., protecting the environment (Lindenberg, 2001; Verhoeven et al., 2020). Providing an external reward may undermine this intrinsic motivation. That is to say, people may no longer engage in the PEB because they are driven

by the intrinsic reward that comes from *doing the right thing*, but because they are now motivated by the external reward; e.g., a financial incentive. This is also known as the *crowding-out effect* of intrinsic motivation (Frey & Oberholzer-Gee, 1997). Financial incentives are thought to crowd out intrinsic motivation by pushing people's moral obligations to engage in a PEB to the background, and instead, putting the focus on the economic benefits that would come from engaging in the behaviour (Feldman & Perez, 2012). Hence, when people's motivation is shifted from intrinsic to more extrinsic, this increases the likelihood that the intrinsic motivation for the PEB will weaken.

This crowding-out effect is detrimental because intrinsic motivation is important for sustained behaviour change (Deci et al., 1999). If, however, the intrinsic motivation for a PEB is weakened as a consequence of implementing a financial incentive, sustained engagement in the PEB may become less likely. Especially after the financial incentive is discontinued and people no longer have an external motivator that drives them to behave sustainably. In the end, they may be less likely to choose the pro-environmental option than before the implementation of the financial incentive. Indeed, a study on recycling behaviour showed that individuals who were initially intrinsically motivated to recycle were less motivated to do so after the implementation and subsequent discontinuation of a financial incentive (Feldman & Perez, 2012). Similar outcomes have been demonstrated for pro-environmental travel behaviour. For instance, Bolderdijk and colleagues (2011) conducted a field study to test whether young car drivers would reduce their speeding behaviour if they received a financial incentive in the form of an insurance premium discount. They found that the incentive was effective as long as it was available, but as soon as it got taken away drivers increased their speeding back to pre-incentive levels. This demonstrates that the financial incentive did not promote long-term changes in behaviour, i.e., when the incentive was no longer available. Based on this body of literature, it seems that implementing financial incentives may not be an effective strategy to promote PEBs, and more specifically, pro-environmental travel behaviour.

Nonetheless, this crowding-out effect of intrinsic motivation has rarely been tested explicitly in relation to PEBs. It has mostly been used to explain why financial incentives sometimes fail to promote the adoption of PEBs. Only recently has a study been conducted to test whether or not providing and subsequently taking away a financial incentive actually undermines people's intrinsic motivation to act sustainably. In this study, Zeiske and colleagues (2021) specifically looked at the effects of a free public transportation card on people's intrinsic motivation to use public transportation. Instead of a crowding-out effect,

they found that participants' intrinsic motivation remained intact even after they no longer had access to the free public transportation card. Thus, more research is needed to test whether financial incentives can indeed undermine intrinsic motivation, and thereby reduce pro-environmental travel behaviour in the long run.

There is also a possibility that financial incentives could be designed to *enhance* intrinsic motivation; i.e., a *crowding-in effect* (Frey, 1994). This could for example be accomplished through the framing of the incentive. Previous studies have found that individuals are more inclined to comply with appeals to engage in PEBs when these appeals highlight the environmental benefits of the PEB, as opposed to the financial benefits (Bolderdijk et al., 2012; Schwartz et al., 2015). This also appears to be the case when financial incentives are used to stimulate PEBs. Jakovcevic et al. (2014) demonstrated that emphasising the environmental benefits of a charge for single-use plastic bags resulted in people bringing their own grocery bags to the store more often than when the financial benefits of this charge were emphasised. Besides, the participants expressed that they switched to bringing their own bags mainly to protect the environment. I would argue that framing the financial incentive to emphasise the environmental benefits of the PEB may have enhanced people's intrinsic motivation *to do the right thing*. Specifically, framing financial incentives with an emphasis on the environmental benefits may signal that it is *that* important to protect the environment that people get rewarded for acting sustainably or get fined when they do not act accordingly. People may internalise this message of importance to protect the environment using the following reasoning: *this financial incentive is a reward for people who find it important to protect the environment and act sustainably. I am receiving this reward. Therefore, I must find it important to protect the environment and act sustainably*. This in turn could strengthen people's intrinsic motivation for the PEB. In contrast, it may be the *financially* beneficial framing of financial incentives that undermines people's intrinsic motivation for PEBs. As mentioned previously, highlighting the financial benefits that people stand to gain from acting sustainably can drive them to engage in the behaviour out of economic self-interest instead of moral obligation, thereby undermining intrinsic motivation (Feldman & Perez, 2012). Thus, framing a financial incentive to emphasise the *financial* benefits of engaging in the PEB may *undermine* intrinsic motivation, whereas framing it to emphasise the *environmental* benefits may *enhance* intrinsic motivation. Taking everything together, it becomes clear that the motivation literature remains ambiguous with regard to *if* and *how* financial incentives influence the adoption of PEBs, and in particular, pro-environmental travel behaviour. Therefore, more research is needed to test both the short-term

effects of financial incentives on the adoption of pro-environmental travel behaviour, as well as the long-term effects.

Finally, the effectiveness of financial incentives to promote pro-environmental travel behaviour may depend on people's motives for choosing air travel. Specifically, it may depend on the extent to which individuals choose air travel for financial reasons – that is, because it is the cheapest option. Research found that individuals who are more likely to travel by plane than by train, mainly do so because of travel cost (Dällenbach, 2020). Additionally, individuals have expressed that they would be more inclined to travel by train if the tickets were cheaper (Higham et al., 2016). Therefore, implementing a financial incentive could make pro-environmental travel options more attractive for people with a strong financial motive for choosing air travel. Consequently, making the adoption of pro-environmental travel behaviour more likely. Thus, the effectiveness of a financial incentive may depend on the strength of people's financial motive for choosing air travel.

Current Study

To date, little research has been conducted to test the effectiveness of financial incentives to promote the substitution of air travel with more sustainable travel. The current study aims to contribute to closing this research gap by examining the effectiveness of a financial incentive in the form of a green travel grant, to encourage pro-environmental travel behaviour. The outcomes of this study may have important theoretical implications, as well as practical implications for policy makers looking to promote pro-environmental travel behaviour through the implementation of financial incentives. Specifically, the current study will examine *if* and *how* a green travel grant, when it is either framed as emphasising the financial benefits or as emphasising the environmental benefits of travelling sustainably, affects: 1.) people's short-term intentions to adopt pro-environmental travel behaviour (i.e., when the grant *is* available), 2.) their intrinsic motivation for this behaviour (i.e., motivation crowding-out or motivation crowding-in), and 3.) their long-term intentions to adopt this behaviour (i.e., when the grant is *no longer* available). Moreover, the current study will examine whether people's financial motive for choosing air travel influences the effectiveness of the green travel grant. In sum, the following hypotheses will be tested:

H_{1a} Compared to no grant, a grant that is framed as benefitting the recipient financially will increase the intention to travel sustainably in the short-term (i.e., when the grant is available).

H_{1b} Compared to no grant, a grant that is framed as benefitting the environment will increase the intention to travel sustainably in the short-term (i.e., when the grant is available).

H_{2a} Compared to no grant, a grant that is framed as benefitting the recipient financially will lower the intrinsic motivation to travel sustainably, and will lower the intention to travel sustainably in the long-term (i.e., when the grant is no longer available).

H_{2b} Compared to no grant, a grant that is framed as benefitting the environment will strengthen the intrinsic motivation to travel sustainably, and will strengthen the intention to travel sustainably in the long-term (i.e., when the grant is no longer available).

H₃ The grant, regardless of its framing, will be more effective in promoting pro-environmental travel behaviour, the stronger people's financial motive for choosing air travel is.

Method

Ethical approval for the current research project was granted by the Ethics Committee of the Department of Psychology at the University of Groningen.

Participants and Procedure

An online experiment was set-up with the use of the platform Qualtrics, and first-year psychology students could access this experiment through the university's SONA research platform. These students were not only recruited for convenience purposes, but also because the experiment included content about the Erasmus+ Programme¹, which would only be relevant for students. Still, they had to meet two inclusion criteria in order to participate in the study: 1.) be enrolled at the University of Groningen at the time of participation, and 2.) be 16 years or older. All of the 316 first-year psychology students who enrolled in the study met these criteria and received course credits in exchange for their participation. However, the responses of 16 participants were excluded from the dataset after data screening. The reasons for exclusion were: incomplete data ($n = 3$), failing the attention check ($n = 3$), failing the manipulation check² ($n = 7$), indicated not to have answered truthfully ($n = 1$), and completing the study in less than 480 seconds ($n = 2$); test runs revealed that this was the minimum time it took to attentively read the items and respond to the questions. This resulted in a final sample of 300 first-year psychology students including 66 men (22%), 231 women (77%), and 3 non-binary or other (1%), whose ages ranged from 17 to 35 years old ($M = 20.25$, $SD = 2.26$). Participants were either Dutch (64,3%), German (16,3%), or of various other nationalities (19,4%), and filled out the questionnaire either in Dutch (55,3%) or English (44,7%). Finally,

¹ The Erasmus+ Programme is an initiative by the European Union that provides its participants with opportunities for their personal, professional, and educational development (European Commission, 2022). One important aspect of the programme is that it provides students from the EU and some non-EU countries with the opportunity to study abroad for a semester.

² In total, 157 participants did not answer the manipulation check (fully) correctly (see Appendix B). However, only participants who selected the nonsense option were excluded to preserve statistical power.

6 students (2%) indicated that they had taken part in the actual Erasmus+ Programme prior to the study.

Due to the online nature of the experiment, students could participate in the study at any given time and location of their choosing. Willing participants gave their informed consent after reading information about the aim of the study, the content of the study, the duration (30 minutes), the voluntariness of their participation, and data anonymisation and confidentiality. Participants then continued with the first part of the study which asked them to respond to statements about instrumental – including financial –, symbolic, and environmental attributes of air travel, and about their enjoyment-based and obligation-based intrinsic motivation to travel by train. They also had to select the answering option *strongly agree* for the attention check. Next, participants were randomly assigned to one of the three conditions (i.e., financial, environmental, or control), read the information that was presented to them, and engaged in a thought experiment in which they were asked to imagine themselves participating in the Erasmus+ Programme. Afterwards, participants responded to statements about their intention to travel sustainably for their imagined Erasmus trip and answered a manipulation check. They then responded to statements about their intrinsic motivation to travel by train a second time, and indicated their intention to travel sustainably for future trips abroad. Next, participants reported their actual travel behaviour during the past year, and those in the experimental groups commented on the sufficiency of the green travel grant amount. Additionally, participants provided some demographic information and indicated whether they had filled out the questionnaire truthfully. Finally, they were debriefed about the actual purpose of the study and could choose whether they still consented to having their responses included in the dataset. Once more, all participants gave their consent.

Materials³

Financial Motive for Choosing Air Travel

Participants' financial motive for choosing air travel was measured with a financial attributes of air travel scale. This scale was based on items used by Noppers and colleagues (2015). The adapted scale consisted of three items: "Travelling by plane is relatively cheap", "Travelling by plane is a low-cost travel option" and "There are cheaper ways to travel than travelling by plane" - which was reverse coded. The items were randomised, and participants indicated to which extent they agreed or disagreed with the statements on a 6-point scale

³ The materials are reported in chronological order. Some additional measures were included in the questionnaire, but these will not be discussed here as they were not relevant for the current study.

ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) ($M = 3.15$, $SD = 1.04$). The internal consistency of the items was good ($\alpha = .82$).

Intrinsic Motivation to Travel Sustainably

In order to measure participants' intrinsic motivation to travel sustainably, a five-item scale was used to ask participants about their obligation-based intrinsic motivation to travel by train. The items of this scale were adapted from Zeiske et al. (2021), and were presented in a random order. An example included: "Travelling by train is in line with my values". For each of the statements, participants responded on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). They answered all these questions twice: once before the experimental manipulation and once afterwards ($M_{\text{pre-manipulation}} = 4.39$, $SD_{\text{pre-manipulation}} = 0.90$; $M_{\text{post-manipulation}} = 4.57$, $SD_{\text{post-manipulation}} = 0.91$). The internal consistency was acceptable both times ($\alpha_{\text{pre-manipulation}} = .75$; $\alpha_{\text{post-manipulation}} = .79$).

Experimental Manipulation

A thought experiment was set up in which the framing of the financial incentive, i.e., a green travel grant, was manipulated. The experiment had three conditions: 1.) a control group that received no information about the grant, 2.) an experimental group for whom the framing of the grant emphasised the financial benefits for the recipient (*financial condition*), and 3.) an experimental group for whom the framing of the grant emphasised the environmental benefits (*environmental condition*). Participants in all three conditions first read some general information about the Erasmus+ Programme and viewed a map of all participating countries. Next, they were presented with the fictitious scenario that they applied to partake in this programme and that their application was approved (see Appendix A). Afterwards, participants in the two experimental groups viewed a flyer with information about the Erasmus+ Green Travel Grant. At the time of this study, this was an actual 50 euro grant that was available to all students who participated in the Erasmus+ Programme and travelled to and/or from their Erasmus destination by means of sustainable transportation (i.e., by train, bus, or carpool). Moreover, depending on the distance to the Erasmus destination, students could be eligible for an additional 6 to 60 euros; making the total grant amount anywhere between 56 and 110 euros. In the current study, this green travel grant was either framed as a way to save money on their travel expenses for participants in the financial condition (see Appendix A, Figure A1), or as a way to help protect the environment for those in the environmental condition (see Appendix A, Figure A2). It is important to note that participants in this study did not *actually* receive the grant, but only read information about it. Once participants in all three conditions had read the information corresponding to their condition,

they answered three questions: “Where in the EU would you want to go on your Erasmus trip?”, “Why would you like to go there?”, and “Now describe as vividly as you can what you would want your Erasmus experience to look like”. A timer for four minutes was put into place before participants could continue with the next part of the study. This was done to ensure that they thoroughly engaged in the thought experiment.

Intention to Travel Sustainably in the Short-term

A scale consisting of five items was created to measure participants’ intention to travel sustainably in the short-term; i.e., to travel by train for their imagined Erasmus trip. The items were randomised and included: “I would travel by train to my Erasmus destination”, “I would consider travelling by train for my Erasmus trip”, and both of these items with *train* replaced by *plane* – which were then reverse scored. Participants answered these questions on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Furthermore, the fifth item was worded as follows: “When travelling to my Erasmus destination, I would ...” and scored from 1 (*definitely travel by plane*) to 6 (*definitely travel by train*). Overall, the internal consistency of this scale was good ($\alpha = .89$, $M = 3.63$, $SD = 1.13$).

Manipulation Check

A manipulation check was included to determine whether the experimental manipulation was adequate. Initially, this manipulation check allowed for multiple answers and participants had to select all relevant response options to best summarise the information that they had read. However, this format seemed to confuse many participants with regard to how exactly they were expected to answer the question. Therefore, the manipulation check was simplified and changed to allow for only one response option to be selected. Detailed information about these two manipulation checks can be found in Appendix B.

Intention to Travel Sustainably in the Long-term

In order to examine participants’ intention to travel sustainably in the long-term, another 5-item measure was created. This measure asked participants about their intention to travel by train for future trips abroad. The format of the questions started with “If I travel abroad in the future ...” followed by: “... I plan to travel by train”, “I intend to travel by train” and each of these statements in which *train* was replaced by *plane*. The latter two items were subsequently reverse coded. The order of the items was once again randomised and they could be scored on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Furthermore, the fifth statement read “When travelling abroad in the future, I will ...”, which participants answered on a 6-point scale from 1 (*definitely travel by plane*) to 6 (*definitely travel by train*). Internal consistency for this scale was good ($\alpha = .86$, $M = 3.59$, $SD = 0.89$).

Demographic Information

Participants answered questions regarding their age, gender, and nationality. They also indicated whether or not they were currently enrolled at the University of Groningen, what they studied, and if they had ever partaken in the actual Erasmus+ Programme.

Statistical Analyses

All data were screened and analysed using IBM SPSS, Version 28. Correlations between all the variables were computed as well as the descriptive statistics. Next, a MANOVA was run to test the effects of the condition to which participants were assigned on 1.) the intention to travel by train for the Erasmus trip (H_{1a} and H_{1b}), 2.) the intrinsic motivation to travel by train (H_{2a} and H_{2b}), and 3.) the intention to travel by train for future trips abroad (H_{2a} and H_{2b}). Furthermore, a regression analysis was performed to test whether the grant was more effective in promoting train travel, the stronger participants' financial motive for choosing air travel was (H_3). In this regression analysis, the independent variables were: 1.) (no) grant, 2.) the strength of the financial motive, and 3.) the interaction between the two. The dependent variable was the intention to travel by train for the Erasmus trip.

Results

First, the distribution of participants across the three conditions was assessed and found to be approximately equal. Next, the Mahalanobis distance was calculated for all participants in order to check for outliers. This revealed 1 multivariate outlier ($MAH > 16.28$), which was excluded from further analyses⁴. After exclusion of this outlier, the correlations between all the variables were calculated (see Table 1), as well as the descriptive statistics (see Table 2). Notably, both the pre- and post-manipulation intrinsic motivation to travel by train were positively associated with the intention to travel by train for the Erasmus trip, as well as the intention to travel by train for future trips abroad. The financial motive for choosing air travel did not significantly correlate with any of the other variables.

Analysis of Hypothesis H_{1a} , H_{1b} , H_{2a} , and H_{2b}

A one-way MANOVA was conducted to test the effects of the condition to which participants were assigned (i.e., financial, environmental, or control) on: 1.) the intention to travel by train for the Erasmus trip (H_{1a} and H_{1b}), 2.) the (post-manipulation) intrinsic motivation to travel by train, and 3.) the intention to travel by train for future trips abroad (H_{2a} and H_{2b}). Prior to running the analysis, the assumptions were checked. There was no multicollinearity between the dependent variables, but they were sufficiently correlated to run a meaningful MANOVA (see Table 1). Furthermore, the covariance matrices across the conditions were assumed to be equal (Box's $M = 9.47$, $p = .67$). However, the assumption of

⁴The analyses were also performed with the outlier included. This yielded no significantly different results.

Table 1

Correlations between: financial motive for choosing air travel, pre-manipulation obligation-based intrinsic motivation to travel by train, post-manipulation obligation-based intrinsic motivation to travel by train, intention to travel by train for the Erasmus trip, and intention to travel by train for future trips abroad.

Variable	1	2	3	4	5
1. Financial motive air travel	-	.02	-.02	-.06	-.06
2. Pre obl. intr. motivation train		-	.79**	.33**	.46**
3. Post obl. intr. motivation train			-	.48**	.56**
4. Intention train travel Erasmus				-	.65**
5. Intention train travel future					-

Note. ** $p < .001$

multivariate normality was violated for the intention to travel by train for the Erasmus trip (Shapiro-Wilks = .99, $p = .02$), and for the intention to travel by train for future trips abroad (Shapiro-Wilks = .99, $p = .03$). It was decided to still run the MANOVA, as the Q-Q plots for these variables revealed no large deviations from normality. The overall MANOVA was statistically significant with Pillai's Trace = .089, $F(6, 590) = 4.59$, $p < .001$, $\eta_p^2 = .045$; meaning that there was a small to medium effect of the condition to which participants were assigned on the combined dependent variable.

Next, a separate follow-up ANOVA was conducted for each of the dependent variables (Levene's F -tests were non-significant). There was a significant difference between the three conditions regarding the intention to travel by train for the Erasmus trip $F(2, 296) = 5.47$, $p = .005$, $\eta_p^2 = .036$. Post hoc tests (Fisher's LSD) revealed that participants in both the financial group and the environmental group had a significantly stronger intention to travel by train for the Erasmus trip than those in the control group – respectively, $p = .01$ and $p = .002$. These results were in line with hypothesis H_{1a} and H_{1b} . However, participants in the experimental groups did not significantly differ from each other ($p = .59$; see Table 2). The second ANOVA found a marginally significant effect of the condition to which participants were assigned on the intrinsic motivation to travel by train $F(2, 296) = 2.70$, $p = .07$, $\eta_p^2 = .018$. Post hoc tests showed that, contrary to hypothesis H_{2a} , participants in the financial condition

Table 2

Means (SDs) per group for: the financial motive for choosing air travel, pre-manipulation obligation-based intrinsic motivation to travel by train, post-manipulation obligation-based intrinsic motivation to travel by train, intention to travel by train for Erasmus the trip, and intention to travel by train for future trips.

Experimental condition	<i>n</i>	Variables				
		Fin. mot. air travel	Pre obl. IM train	Post. obl. IM train	Intention train travel Erasmus	Intention train travel future
Control	97	3.12 _a (1.02)	4.34 _a (0.86)	4.47 _a (0.89)	3.32 _a (1.08)	3.59 _a (0.89)
Financial	103	3.05 _a (1.06)	4.53 _a (0.95)	4.74 _b (0.85)	3.72 _b (1.12)	3.55 _a (0.84)
Environmental	99	3.30 _a (1.03)	4.30 _a (0.83)	4.50 _{ab} (0.94)	3.81 _b (1.13)	3.64 _a (0.95)

Note. The financial motive for choosing air travel, and the intention to travel by train for the Erasmus trip and future trips abroad were scored on a 6-point scale. The obligation-based intrinsic motivation items were scored on a 7-point scale.

_{a, b} The same subscript indicates that there was no significant difference between groups on that particular variable, whereas different subscripts indicate that there was a significant difference between groups ($p < .05$).

were *more* intrinsically motivated to travel by train than those in the control condition ($p = .04$). However, this effect did not show for participants in the environmental condition when compared to those in the control condition ($p = .80$) – thereby, contradicting hypothesis H_{2b} . Moreover, participants in the financial condition were slightly more intrinsically motivated to travel by train than those in the environmental condition ($p = .06$; see Table 2). Lastly, it was found that the condition to which participants were assigned did not influence the intention to travel by train for future trips abroad $F(2, 296) = 0.26, p = .77, \eta_p^2 = .002$ (see Table 2). In conclusion, the results supported hypothesis H_{1a} and H_{1b} , but did not support hypothesis H_{2a} and H_{2b} .

Analysis Hypothesis H_3

A multiple regression analysis was performed to test hypothesis H_3 . In order to conduct the analysis, the independent dummy variable ‘(no) grant’ was created by assigning all participants in the experimental conditions a one, and those in the control condition a zero. The other independent variables in the analysis were the financial motive for choosing air travel and its interaction term with the (no) grant variable; all three independent variables were centred. The dependent variable was the intention to travel by train for the Erasmus trip. Prior to running the regression analysis, the assumptions of linearity, homoscedasticity, and independence of observations were checked and found to be met. However, based on the Shapiro-Wilks test the assumption of normality was violated ($SW = .99, p = .02$). Inspection of the Q-Q plot revealed no large deviations from normality for the dependent variable, and it was therefore decided to still run the multiple regression analysis. The results showed that the overall regression model was significant $F_{\text{change}}(3, 295) = 4.33, p = .005, R^2 = .04$, and that 4% of the variance in the intention to travel by train for the Erasmus trip was explained by the three predictors. However, the only significant predictor to the model was the (no) grant variable $t(298) = 3.45, \beta = 0.20, p < .001$. No significant contribution was made to the model by participants’ financial motive for choosing air travel $t(298) = 3.45, \beta = -0.06, p = .29$, nor by the interaction between the two predictors $t(298) = 3.45, \beta = 0.02, p = .68$. Thus, participants’ financial motive for choosing air travel did not influence the effectiveness of the grant in promoting train travel for the Erasmus trip. Hence, hypothesis H_3 was not supported.

Discussion

The current study tested the effectiveness of a financial incentive in the form of a green travel grant to encourage the adoption of pro-environmental travel behaviour; both in the short-term (i.e., when the grant was available) and in the long-term (i.e., when the grant was no longer available). Specifically, it was examined *if* and *how* the green travel grant affected 1.) people’s intention to travel by train in the short-term, 2.) their intrinsic motivation to travel by train, and 3.) their intention to travel by train in the long-term. It was expected that, compared to no grant, a grant that was framed as benefitting the recipient financially would increase the intention to travel sustainably in the short-term (H_{1a}). This was also expected to be the case when comparing a grant that was framed as benefitting the environment to no grant (H_{1b}). Indeed, the results showed that the grant in both instances effectively increased people’s intention to travel by train in the short-term. Furthermore, it was hypothesised that the financially framed grant, when compared to no grant, would lower the intrinsic motivation to travel sustainably and would lower the intention to travel

sustainably in the long-term (H_{2a}). In contrast, it was expected that the *environmentally* framed grant would *increase* both the intrinsic motivation and the long-term intention to travel sustainably, when compared to no grant (H_{2b}). Notably, people's intrinsic motivation to travel by train was not lowered by either grant; on the contrary, it appeared to be enhanced for those in the financial framing group. Nonetheless, the results demonstrated that neither the financially framed grant nor the environmentally framed grant affected people's long-term intention to travel by train, when compared to no grant. Lastly, it was hypothesised that the grant, regardless of its framing, would be more effective in promoting pro-environmental travel behaviour the stronger people's financial motive for choosing air travel was (H_3). The results, however, did not support this hypothesis.

Effectiveness of the Green Travel Grant in the Short-term

Participants who received information about the green travel grant, of which the framing either emphasised the financial- or the environmental benefits, indicated a stronger intention to travel by train to their Erasmus destination than those who did not receive any information about the grant. These findings are in line with the hypotheses (H_{1a} and H_{1b}) and lend further support to previous findings that implementing financial incentives can be an effective strategy to promote the adoption of pro-environmental travel behaviour in the short-term (e.g., Bamberg, 2006; Thøgersen, 2009). Moreover, the current study is one of the first to corroborate the finding that financial incentives can effectively encourage the short-term substitution of air travel with train travel (Dällenbach, 2020). Still, it is important to note that the current experiment was hypothetical in nature. Therefore, participants neither received the actual green travel grant, nor was it possible to assess their actual travel behaviour. Instead, this study relied solely on participants' intentions. This might prove problematic in light of the intention-behaviour gap (Sheeran, 2002), as these intentions to travel by train for the Erasmus trip may in reality not translate to the actual adoption of this behaviour. Especially because the intentions remained relatively weak (see Table 2). Nevertheless, the scenario described in the thought experiment was designed to be realistic for the participants in this study. It is therefore expected that participants' intentions reflect their actual travel behaviour relatively closely. Thus, the current study outcomes support the notion that implementing a financial incentive (i.e., a green travel grant) can lead to the choice for pro-environmental modes of travel over air travel. Future studies could expand these findings by providing people with an actual financial incentive and assessing their subsequent real-life adoption of various (pro-environmental) travel modes.

Effects on the Intrinsic Motivation to Travel by Train

The current study explicitly tested the *crowding-out* effect of intrinsic motivation as proposed by Frey and Oberholzer-Gee (1997). It was expected that compared to no grant, the green travel grant would lower people's intrinsic motivation to travel by train, when the grant's framing emphasised the financial benefits for the recipient. However, the results did not confirm this expectation. In fact, they revealed an effect in the opposite direction; the financially framed grant *increased* the intrinsic motivation to travel by train. This finding has important theoretical implications, as it does not support the notion that intrinsic motivation can be crowded by the implementation of a financial incentive (Deci et al., 1999; Feldman & Perez, 2012; Oberholzer-Gee, 1997). Instead, this finding highlights that the crowding-out effect is not substantiated when it is tested explicitly. This has also been demonstrated by previous research (Zeiske et al., 2021). It could therefore be argued that the crowding-out effect may be solely theoretical in nature and does not translate to real-life settings. For instance, because a grant, or other financial incentive, may not make people think solely about what they stand to gain financially from engaging in the PEB, but may also automatically make them consider the environmental impact of their behaviour. In turn, making it more likely that individuals adopt the PEB for a combination of monetary and moral reasons, as opposed to solely for monetary reasons – and thereby, keeping the intrinsic motivation for the behaviour intact. Moreover, it is possible that the current study did not find a crowding-out effect of intrinsic motivation, but a *crowding-in* effect, because participants considered the grant amount insufficient. A round-trip by train in Europe easily costs a few hundred euros, whereas the grant amount was at most 110 euros. Therefore, the grant may not have been a big enough external motivator to crowd out the intrinsic motivation to travel by train, but it may have been a good enough reminder that emphasised the importance of protecting the environment by travelling sustainably – thereby, supporting and increasing people's intrinsic motivation to travel by train (i.e., a crowding-in effect; Frey, 1994). This reasoning could be explored further in future studies by examining whether varying amounts of a financial incentive affect intrinsic motivation differently, and if so, under which circumstances.

The crowding-in effect of intrinsic motivation was also explicitly tested in the current study. It was hypothesised that the green travel grant, in comparison to no grant, would increase the intrinsic motivation to travel by train when the grant was framed as benefitting the environment. Yet, the results showed that participants who read information about the environmentally framed grant and those who did not read any information about the grant showed similar levels of intrinsic motivation to travel by train. In contrast, there was a trend

towards a group difference between participants in the financial group and those in the environmental group. Reading information about the financially framed grant led to a slightly higher intrinsic motivation to travel by train than reading information about the environmentally framed grant. These findings are not in line with the existing literature that suggests that people are more inclined to engage in PEBs and are more intrinsically motivated to engage in them, when the appeal for the behaviour focuses on its environmental instead of its financial benefits (Bolderdijk et al., 2012; Schwartz et al., 2015); also, when this appeal is made through the implementation of a financial incentive (Jakovcevic et al., 2014). However, it is important to note that in the current study the environmental framing of the green travel grant could be considered not a true environmental appeal because the financial information about the grant was also included (i.e., the grant amount). Previous research has demonstrated that environmental appeals can be weakened by incorporating financial information in the appeal (e.g., Schwartz et al., 2015), which may explain why the environmentally framed grant did not result in an increase in the intrinsic motivation to travel by train. Still, this begs the question why the financially framed grant *did* crowd in the intrinsic motivation. One possible explanation is that the pre-manipulation levels of the intrinsic motivation to travel by train affected this outcome. Participants who viewed the financially framed information about the grant had namely somewhat higher pre-manipulation levels of intrinsic motivation than participants in the other two groups (see Table 2); meaning that participants in the financial group felt somewhat stronger moral obligations to protect the environment by travelling sustainably. Therefore, the grant may have tapped into their intrinsic motivation more strongly and as a consequence may have enhanced it. Another explanation could be that the experimental manipulation may not have been adequate, making it difficult to detect differences in intrinsic motivation as a result of the framing of the grant. As mentioned previously, there was no true *environmental* condition; and since a grant that is used to promote pro-environmental travel behaviour is inherently environmental, there was also no true *financial* condition. As such, in response to the manipulation check, participants often indicated that the information that they had read about the grant included aspects of the financial or the environmental framing, when it had not (see Appendix B). Thus, future research should aim to improve the construct validity of the experimental manipulation by designing an experiment in which the financial and the environmental framing of a financial incentive are truly separated. Additionally, it could include a separate condition in which the framing combines both. For example, a green travel grant could be described as just a “travel grant” in the financial condition, and the amount of the grant could be omitted in the

environmental condition. The combined condition could include all relevant financial and environmental aspects of the grant.

Effectiveness of the Green Travel Grant in the Long-term

The green travel grant, regardless of its framing, did not affect people's intention to travel by train for future trips abroad. This outcome contradicts the hypotheses (H_{2a} and H_{2b}), as it was expected that the financially framed grant would lower people's intention to travel sustainably in the long-term, and that the environmentally framed grant would increase this intention. It is probable that the financially framed grant, when compared to no grant, did not weaken participants' long-term intention to travel by train because the intrinsic motivation to travel by train was also not weakened. That is to say, since no motivation crowding out occurred, the intrinsic motivation to travel by train remained intact, which in turn may have upheld the long-term intention for this behaviour. This is in line with previous research in which the importance of intrinsic motivation as a predictor of sustained behaviour (change) is described (Deci et al., 1999; Pelletier et al. 1998). In a similar vein, this would explain why the environmentally framed grant, when compared to no grant, did not increase people's long-term intention to travel by train; since the intrinsic motivation to travel by train did not increase, neither did the long-term intention for this behaviour. However, this reasoning does not account for the finding that participants' intrinsic motivation was, in fact, enhanced by the financially framed grant, but did not in turn increase the intention to travel by train in the long-term. Therefore, future studies should further examine the role of intrinsic motivation in explaining travel-related behaviour. Especially because travelling by train is a relatively complex and difficult PEB; and these types of PEBs are believed to be influenced less strongly by individual factors, such as intrinsic motivation, than easier PEBs (Stern, 2000). Still, there are some individual factors that have been found to be related to long-term engagement in PEBs, and these may also be worth exploring in future research on the substitution of air travel with train travel. These factors include: environmental self-identity (Whitmarsh & O'Neill, 2010), subjective norms (Singh & Kaur, 2021), and habits (Kenyon & Lyons, 2003).

The Role of People's Financial Motive for Choosing Air Travel

Lastly, it was examined if the green travel grant was more effective in promoting pro-environmental travel behaviour, the stronger people's financial motive for choosing air travel was (H_3). This hypothesis was based on the rationale that the grant would make train travel more cost-competitive, and therefore more attractive to individuals who are financially motivated to choose air travel. However, the results did not support this hypothesis. On the

contrary, there seemed to be no relationship at all between participants' financial motive for choosing air travel and their intention to travel by train for the Erasmus trip (see Table 1); indicating that people's financial motive for choosing air travel did not influence the effectiveness of the grant to any extent. This outcome may be explained by the absence of significant differences between the three groups on how they evaluated the financial attributes of air travel (see Table 2), which could signal that the financial aspect of air travel may be of equal importance to all individuals. This is promising as it implies that a green travel grant could effectively encourage the adoption of pro-environmental travel behaviour for everyone. Especially since participants had somewhat stronger financial motives for choosing air travel (i.e., they evaluated air travel as relatively expensive) and the grant *still* increased intentions to travel by train in the short-term. Another possible explanation as to why people's financial motive for choosing air travel did not influence the effectiveness of the grant could be that the hypothesised financial barrier to choosing sustainable travel was not as prevalent. In fact, it may be the non-monetary barriers that play a more prominent role in the adoption of pro-environmental travel behaviour. For instance, the instrumental attributes, such as convenience, comfort, or time investment. These could be evaluated more negatively for sustainable travel than for air travel, which may influence the effectiveness of a financial incentive, or other strategy that aims to promote pro-environmental travel behaviour to a greater extent than the financial aspects. Furthermore, previous research has suggested that the symbolic attributes (e.g., status) of a pro-environmental option are especially important in promoting its adoption; even when its instrumental attributes are evaluated more negatively (Noppers et al., 2014, 2015). The extent to which these instrumental- and symbolic aspects play a role in the substitution of air travel with more sustainable travel could be examined in future studies. It would be particularly interesting to investigate whether financial incentives have the potential to compensate for the non-monetary barriers to the adoption of pro-environmental travel behaviour.

Practical Implications

The outcomes of this study have some important practical implications for policy makers looking to promote pro-environmental travel behaviour through the implementation of financial incentives. Notably, this study found that implementing a financial incentive in the form of a green travel grant, increased people's intention to travel by train in the short-term. This is a promising finding as it indicates that the implementation of financial incentives is an effective strategy that can be used by policy makers to encourage sustainable travel – at least, in specific contexts where the incentive is available (e.g., for Erasmus trips). However, if

policy makers are looking to promote pro-environmental travel behaviour more generally, a one-time financial incentive may not be the most effective strategy, as the outcomes demonstrate that this type of incentive does not promote sustainable travel in the long-term.

Limitations

The current study had a couple of limitations that are important to discuss. First of all, the sample was recruited from a WEIRD (Western, Educated, Industrialised, Rich, and Democratic) population and consisted of only first-year psychology students. Therefore, the findings cannot be generalised to other student populations, or other populations in general. In order to increase the external validity, future research should replicate the current study within different populations. They could recruit a different student sample or a sample including individuals with more financial means than students. Another limitation is the reliance on self-reported data. Despite controlling for social desirability by including an honesty check, there is a possibility that it still influenced participants to give answers that reflected a more pro-environmental stance than they held in reality. To resolve this issue, future studies should not only rely on self-reports, but also include observational data of actual travel behaviour. A third short-coming was that the current study did not explicitly examine the framing effects of the grant – that is, the financially framed grant group was not compared to the environmentally framed grant group, but each of these groups was only compared to the no grant control group. Exploratory findings suggest that there were no framing effects of the grant (see Table 2), but these findings remain preliminary. Therefore, no hard conclusions can be drawn about the way in which the framing of the grant influenced the outcomes of this study. Future research should aim to explicitly test *if* and *how* the framing of a financial incentive affects people's intrinsic motivation to travel sustainably, and their adoption of pro-environmental travel behaviour in the short- and long-term.

Conclusions

This study was one of the first to examine the effectiveness of a financial incentive in the form of a green travel grant, in promoting the substitution of air travel with sustainable travel; both in the short-term (i.e., when the incentive was available) and in the long-term (i.e., when it was no longer available). This study thereby took into account *if* and *how* the financial incentive affected people's intrinsic motivation to travel sustainably, and whether the strength of their financial motive for choosing air travel influenced the effectiveness of the grant. It was found that the green travel grant increased people's intention to travel by train in the short-term. Thus, providing individuals with an external reward (i.e., a financial incentive) can motivate them to engage in the desired pro-environmental travel behaviour in the short-

term. Moreover, the grant, regardless of its framing, did not weaken the intrinsic motivation to travel by train. On the contrary, when the framing of the grant emphasised the financial benefits for the recipient, the grant strengthened people's intrinsic motivation to travel by train. These findings do not substantiate the presence of a *crowding-out* effect of intrinsic motivation, but instead provide some initial evidence for a *crowding-in* effect. Furthermore, the study outcomes demonstrate that implementing a financial incentive does not promote pro-environmental travel behaviour in the long run. Finally, people's financial motive for choosing air travel did not influence the effectiveness of the grant. This could indicate that the financial considerations of choosing how to travel are of equal importance to all individuals. Hence, the implementation of a financial incentive may effectively promote pro-environmental travel behaviour in the short-term for everyone.

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Appendix A

Experimental Manipulation

The exact wording of the experimental manipulation for the financial, the environmental, and the control group can be found below:

Going on Erasmus!

In 1987 the European Union established the Erasmus+ Programme to help its participants in their personal, professional and educational development. Since its foundation in 1987, more than ten million people have participated in the programme - amongst whom many students. One important aspect of the programme is that it provides students from all over the EU (and some non-EU countries) the opportunity to study abroad for a semester. As a student, you can apply to study at a university of your choice in a different country as long as it is part of the Erasmus+ Programme (see map below). Usually, the International Mobility Office (IMO) of your own university takes care of the applications and guides you in the process. All to ensure that you can go on Erasmus and have a once in a lifetime experience!

Now, imagine that you decided that you wanted to do just that: go on Erasmus. After thoroughly considering all the participating countries and researching several universities, you picked the one that interested you the most. And so, you wrote a convincing application letter and sent it to the International Mobility Office (IMO). While waiting for their decision on your application, you already imagined what your life would be like living in that other city: new friends, new courses that you wouldn't be able to take back home, a party here and there, sightseeing, etc. Therefore, when you receive the long-awaited email from the IMO, you are excited to read the following:

Congratulations!

We are happy to inform you that your application to study abroad at (university of your choice) has been approved! This means that you will be going on Erasmus during the first semester of the next academic year (September until February). Although this may seem a long way in the future, we would advise you to already start planning your trip. *Please consider the flyer we have attached to this email when doing so (this sentence was added for the experimental conditions only).*

Best regards,

International Mobility Office

University of Groningen



The flyer features a teal header with the title 'Erasmus+ Green Travel Grant' and an icon of two location pins connected by a dashed line. Below this is a teal bar with the text 'SAVE MONEY!'. The main body contains two paragraphs of text and an illustration of a Euro banknote and coins. At the bottom is another teal bar with the text 'APPLY NOW'.

Erasmus+ Green Travel Grant

SAVE MONEY!

We are aware that travelling to a different country can be expensive. Therefore, in order to help you save money on your travel expenses, you can apply for the Erasmus+ Green Travel Grant (50 euros + 6 to 60 euros depending on the distance to your destination). Every student who decides to travel by train, bus or carpool will be eligible for the grant. You just need to submit a corresponding proof of your travel mode and the grant is yours.

This means that you could save up to 110 euros on your travel expenses!

APPLY NOW

Figure A1. Flyer presented to participants in the financial condition.



The flyer features a light grey background with green accents. At the top left, there is an icon of two location pins connected by a dashed line. To the right of this icon, the text 'Erasmus+ Green Travel Grant' is written in a green, sans-serif font. Below this, a dark green horizontal bar contains the text 'HELP THE ENVIRONMENT!' in white, uppercase letters. The main body of the flyer contains two paragraphs of green text. The first paragraph explains the grant's purpose and eligibility. The second paragraph encourages environmental impact. To the right of the second paragraph is a cartoon illustration of a person on a ladder painting a green leaf on a globe. At the bottom, another dark green horizontal bar contains the text 'APPLY NOW' in white, uppercase letters.

Erasmus+ Green Travel Grant

HELP THE ENVIRONMENT!

We are aware that travelling to a different country can have a negative impact on the environment. Therefore, in order to help you protect the environment by travelling sustainably, you can apply for the Erasmus+ Green Travel Grant (50 euros + 6 to 60 euros depending on the distance to your destination). Every student who decides to travel by train, bus or carpool will be eligible for the grant. You just need to submit a corresponding proof of your travel mode and the grant is yours.

This means that you could really make a difference for the environment!

APPLY NOW

Figure A1. Flyer presented to participants in the environmental condition.

Appendix B

Manipulation Checks

This study used two different versions of the same manipulation check. The first version seemed unclear to participants, and therefore, a simplified (second) version was implemented. The first version allowed for multiple response options to be selected, whereas the second version only allowed one response. Approximately half the participants were shown the first version of the manipulation check, and the other half the second version.

Version 1	Version 2
<p>Which of the following statements best summarizes the information that <u>you</u> read? There can be multiple right answers. Please select <u>all</u> that apply.</p>	<p>During the thought experiment you were presented with some general information about the Erasmus+ Programme. How would you summarize the rest of the information that you read? Please select the option that you think is <u>most</u> accurate.</p>
<ol style="list-style-type: none"> 1. General information about the Erasmus+ Programme. 2. Approval of my imagined application for the Erasmus+ Programme. 3. Information about the most efficient way to plan my imagined Erasmus trip. 4. Information on how I could save money on the travel expenses for my imagined Erasmus trip, because travelling to a different country can be expensive. 5. Tips on where to buy the best plane tickets for my imagined Erasmus trip. 6. Information on how I could help the environment through travelling by train to my imagined Erasmus destination. 	<ol style="list-style-type: none"> 1. Information about the most efficient way to plan my imagined Erasmus trip. 2. Information on how I could save money on the travel expenses for my imagined Erasmus trip, because travelling to a different country can be expensive. 3. Information on where I could buy the cheapest plane tickets for my Erasmus trip. 4. Information on how I could help the environment through travelling by train to my imagined Erasmus destination. 5. None of the above. I did not read any other information.

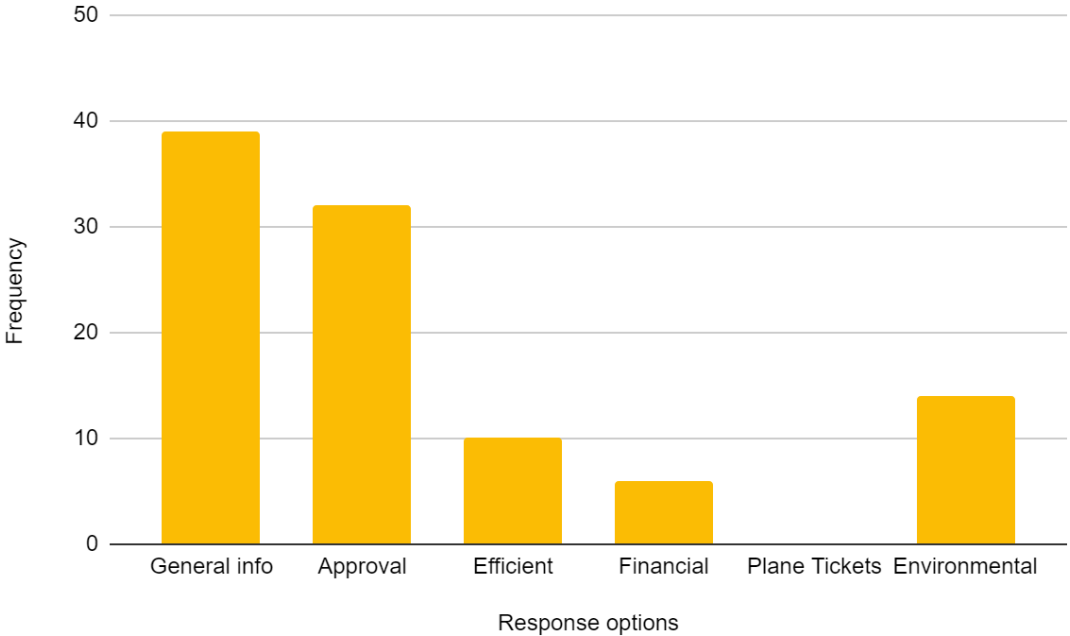
Table B1. The two versions of the manipulation check.

The nonsense response option was the one referencing plane tickets. Specifically, response option 5 for the first version of the manipulation check, and response option 3 for the second version of the manipulation check. The correct answers for each of the manipulation checks can be found in Table B2.

	Correct answer version 1	Correct answer version 2
Control group	1 and 2	5
Financial group	1, 2, and 4	2
Environmental group	1, 2, and 6	4

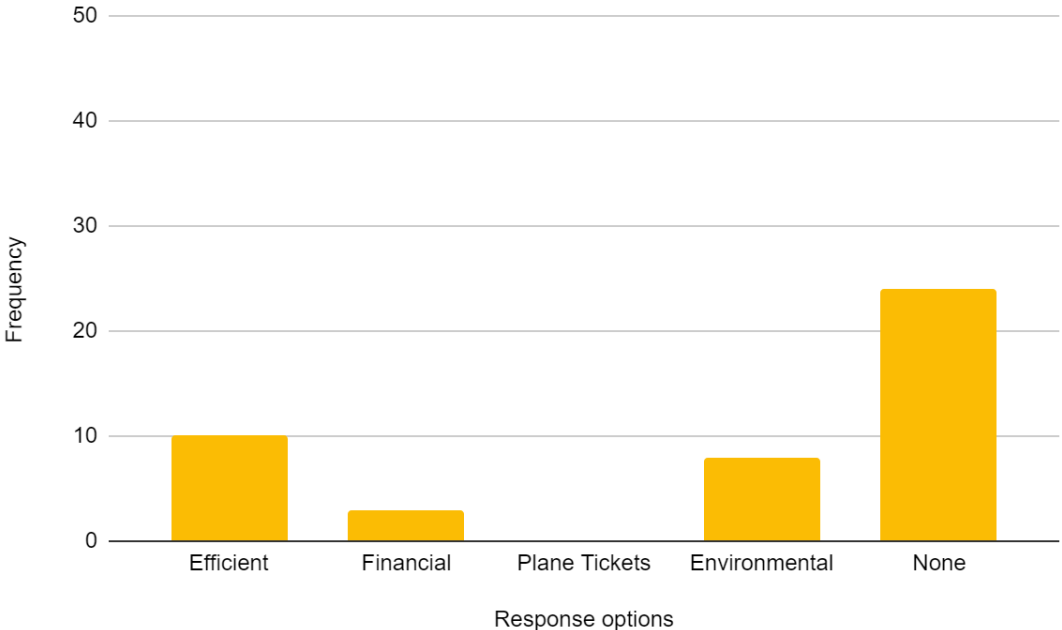
Table B2. The correct answers to each of the manipulation checks for each of the conditions.

The distribution of the actual responses given by participants in each of the conditions, and for each of the manipulation checks can be found in Figure B1 through Figure B6. Note that every participant was only presented with and answered *one* version of the manipulation check.



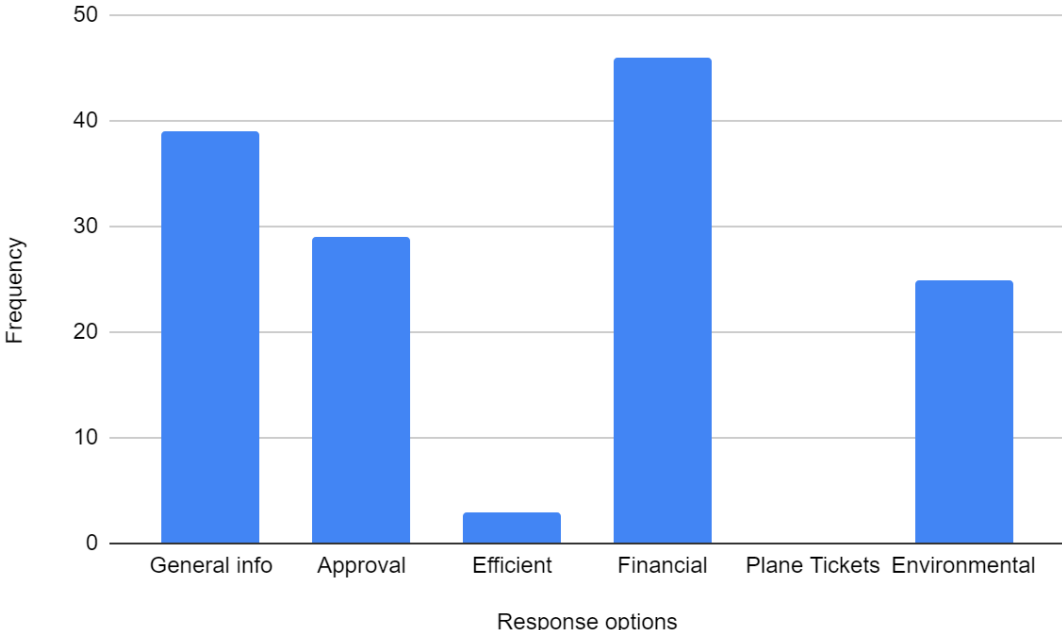
Note. n = 52. Multiple response options could be selected.

Figure B1. Distribution of response options chosen by participants in the control group for the first version of the manipulation check.



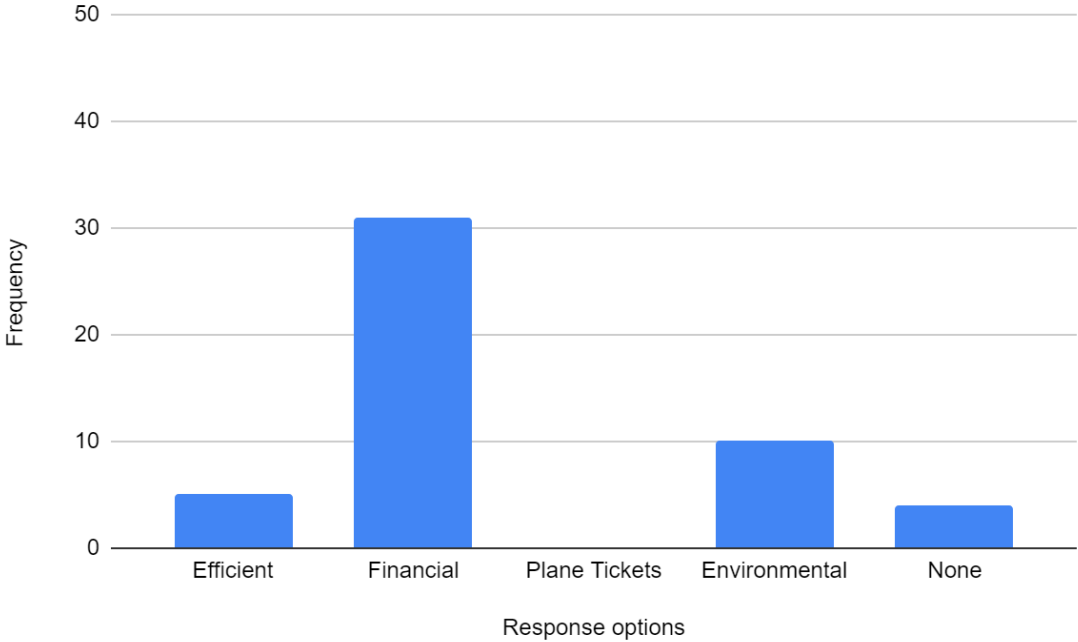
Note. $n = 45$. Only one response option could be selected.

Figure B2. Distribution of response options chosen by participants in the control group for the second version of the manipulation check.



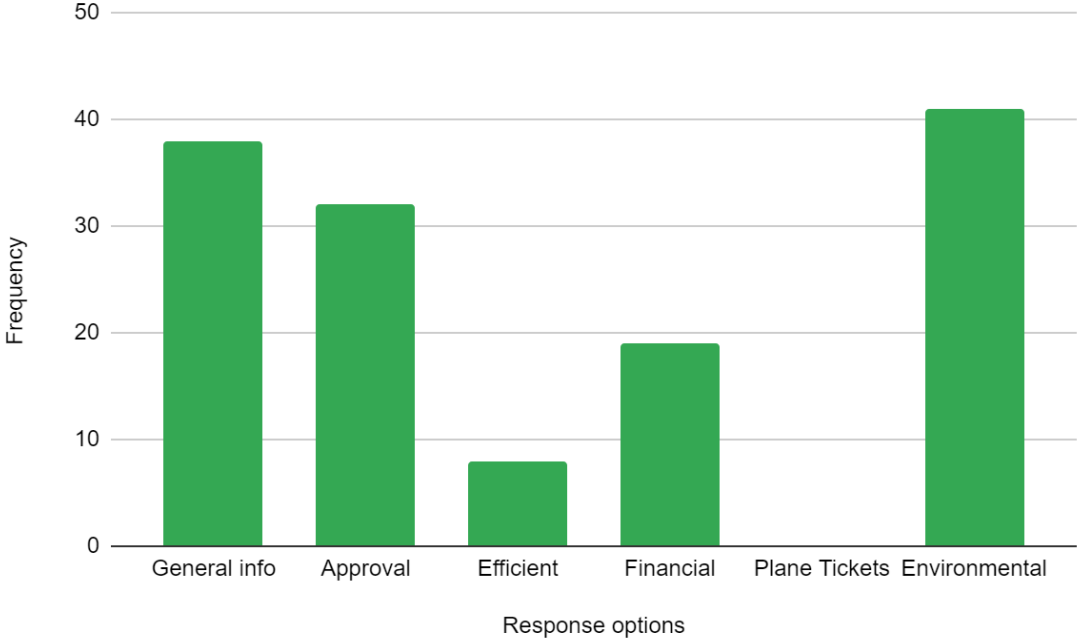
Note. $n = 53$. Multiple response options could be selected.

Figure B3. Distribution of response options chosen by participants in the financial group for the first version of the manipulation check.



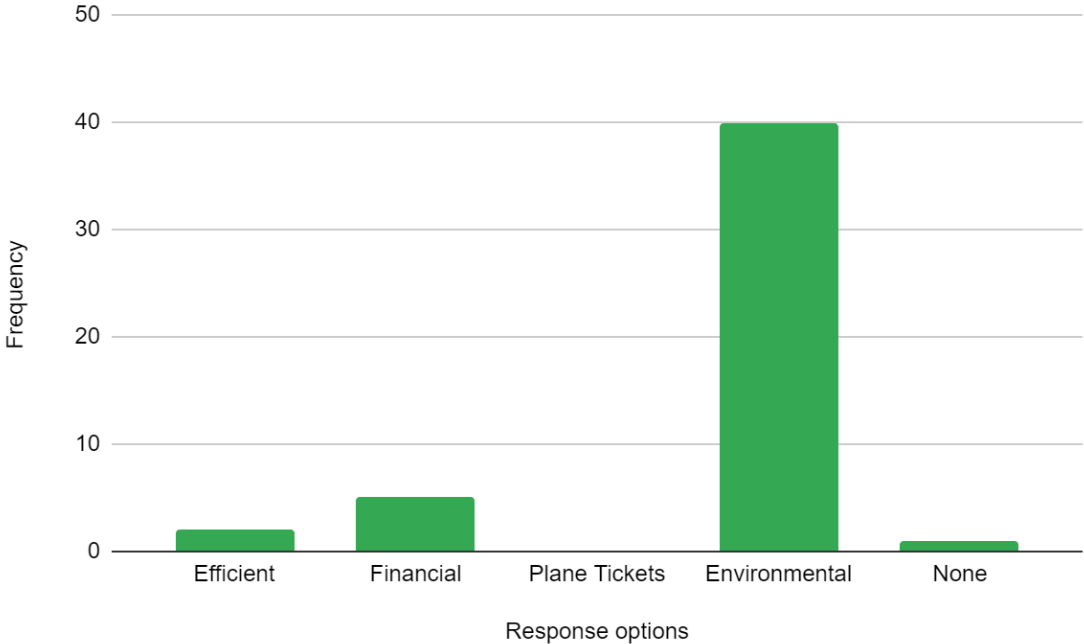
Note. $n = 50$. Only one response option could be selected.

Figure B4. Distribution of response options chosen by participants in the financial group for the second version of the manipulation check.



Note. $n = 51$. Multiple response options could be selected.

Figure B5. Distribution of response options chosen by participants in the environmental group for the first version of the manipulation check.



Note. $n = 48$. Only one response option could be selected.

Figure B1. Distribution of response options chosen by participants in the environmental group for the second version of the manipulation check.