The Characteristics of Pro-Environmental Urban Tourists: A Market Segmentation Study Based on the New Ecological Paradigm

Master Thesis for Obtaining the Degree

Master of Business Administration

Sustainable Development and Public Governance

Submitted to: Prof. Sabine Sedlacek

Jennifer Day

1402007

Vienna, May 2018

Abstract

In light of growing awareness about climate change and other pressing environmental issues, an increasing number of cities around the world are focusing on making their tourism offering more environmentally-friendly, which is referred to in this Master's Thesis as "urban green tourism." However, relatively little is known about the demographic and psychographic characteristics of pro-environmental urban tourists, information that can be of great use to tourism businesses and policymakers. The present study therefore conducted a survey with tourists in the city of Prague using the 15-item version of Dunlap et al.'s (2000) New Ecological Paradigm (NEP) scale, an environmental attitude scale that has been shown to have high validity across a number of contexts and cultures, and to be correlated with pro-environmental behavior. Based on survey results, tourists were segmented into "high," "medium" and "low" NEP groups, and the demographics (age, gender, marital status, per capita GDP of home country, income, child-status) and trip interests of these groups were compared. It was found that urban tourists with higher NEP scores were less likely to have children and more likely to be interested in art, music and food. They also had a tendency to be more interested in nature and biking/hiking, and less interested in shopping. Women were more ecocentric in their attitudes than men, while men were less likely to think humans are exempt from the constraints of nature. The findings of this study are discussed in with regard to how urban tourism businesses and policymakers can better target and attract pro-environmental tourists.

Table of Contents

Index of Figures

Index of Tables

List of Abbreviations

CSR	Corporate Social Responsibility
DMO	Destination Marketing Organization
GDP	Gross Domestic Product
NEP	New Ecological Paradigm
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
SRQ	Secondary Research Question
UN	United Nations
UNEP	United Nations Environment Program
UNWTO	World Tourism Organization

1 Introduction

The present chapter will include a description of the problem to be addressed by this Master's Thesis **(1.1)**, a statement of the research aims **(1.2)** and research questions **(1.3),** and a brief summary of the thesis structure **(1.4)**.

1.1 The Problem

An increasing number of cities around the world are focusing on the environmental impacts of tourism, hand-in-hand with growing awareness about climate change and other pressing environmental issues (United Nations Environment Program [UNEP], 2017). Indeed, while tourism is an important economic driver, it is also known to be associated with large environmental impacts including massive water and energy use by accommodations and tourist attractions (Gössling, 2002; Gössling, 2015); direct and indirect greenhouse gas emissions (Filimonau et al., 2013); change of land cover and use (Gössling, 2002); production of solid waste (Peeters et al., 2015), and disturbance of ecosystems by litter, light and sound pollution. Sustainable tourism strategies aim to address these environmental impacts while simultaneously taking into account economic and social factors (UNWTO, 2017a), inevitably involving tradeoffs and compromises.

Despite the inevitability of tradeoffs, the scale of tourism's environmental impacts is leading to ever more urgency for action. Globally, it has been estimated that the tourism industry makes up 5% of CO^2 emissions (Scott, Peeters & Gössling, 2010; World Tourism Organization [UNWTO], 2008), and up to 12.5% if radiative forcing is taken into account (Peeters et al., 2015). In 2016, 55% of tourists travelled to their destination by air and 39% by road, representing a large portion of those emissions (Peeters et al., 2015; UNWTO, 2017b). Furthermore, statistics show that tourists use 3-4 times as much water as residents, on average 300 liters per guest night, and significantly more if indirect water usage is taken into account (Gössling, 2015; Peeters et al., 2015). With steady increases in the yearly number of international overnight visitors, reaching 1.235 billion in 2016, these impacts are set to increase unless mitigation strategies are implemented (UNWTO, 2017a).

While the environmental impacts of tourism are most salient in pristine or nature-based destinations, urban tourism also brings with it its own environmental challenges, including energy and water use from accommodation and tourist activities, and pollution from transport. As concentrated hubs of human activity, cities have huge impacts on surrounding ecosystems, which are being amplified by a greater number of visiting tourists

arriving each year, as well as a general migration of people to cities (Gibson et al., 2003; Peeters et al., 2015). The United Nations (UN) has estimated that 66% of the world's population will live in cities by 2050 (UN, 2014). Cities are naturally an attractive destination for tourists due to their relatively easy accessibility and concentration of attractions, as well as the function they serve as a "gateway" for travel to more remote areas (Gibson et al., 2003; Pavlic, Portolan & Butorac, 2013). The rise of budget airlines and intercity train and bus lines has further driven a rise in tourism in many cities. The effort to make tourism in cities more environmentally friendly is therefore of increasing interest.

Urban green tourism has been pioneered by cities such as Toronto, where the city's Green Tourism Association developed several urban green tourism initiatives including a green map, a green tourism guide and an informational website (Gibson et al., 2003). However, in many if not most cities, greater efforts are needed to achieve a form of urban tourism that is sustainable in the long term. Such efforts not only are vital for environmental reasons, but also from a social and economic point of view. As Gibson et al., (2003) write,

> "bringing ecotourism to the city takes advantage of existing consumer trends and shifting demographics, capitalizes on the efficiencies of the urban form to advance sustainable development goals, as well as supporting and enhancing the quality of life and local economies of our regions" (p.327).

Indeed, the benefits of green urban tourism are multifaceted and can be a "win-win" for cities, businesses, local ecosystems and people.

This Master's Thesis will examine the topic of urban green tourism in the context of a specific business problem related to *Prague Green City Guide* (Day & Hebrová, 2016), a green tourism guidebook that was published in Prague in December 2016, with the mission of fostering more environmentally-conscious tourism in the city of Prague. The rationale behind writing the book was two-fold. First, it is known that pro-environmental tourists may wish to travel with a lighter footprint, but do not always know how. Particularly when visiting new cities, eco-friendly alternatives for accommodation, dining and other activities may not be known to tourists. As a result, pro-environmental tourists may end up consuming less consciously on holiday than they would at home. Indeed, research has shown this to be the case (Juvan & Dolnicar, 2014). Secondly, local green businesses often struggle to attract enough customers given that the local environmentally-conscious customer segment is still small. Therefore, they could benefit from additional business from foreign customers.

Prague Green City Guide aimed to address both of these problems by presenting tourists in Prague with a guide to local environmentally-conscious businesses in a compact and attractive format (see Figure 1). The goal was to help meet the needs of eco-conscious tourists while also enabling local green businesses to showcase their products and services. What resulted was a guidebook detailing greener alternatives for accommodation, tours, activities, dining, shopping and culture. 167 businesses and projects were profiled in the book, which was sold both online and in shops in Prague and other European cities. Direct sales to customers comprised the majority of the business's revenue and future plans may include expanding the business to include further services and potentially other cities.

Figure 1: *Prague Green City Guide*

In writing and marketing the guidebook, a challenge the founders faced was understanding who their customers are. After a year of running the business, the founders were able to glean some basic information about their followers from the business's social media accounts (see Figure 2). This data showed that the majority (75%) of their social media followers were female and the largest group was between the age of 18-44. The top five countries from which followers came were the Czech Republic, United States, the United Kingdom, Germany and Slovakia, though followers came from all over the world. However, aside from these limited social media statistics, very little else was known about the readers of the book. The founders believed that there might be a larger segment of pro-environmental tourists not being captured by their social media marketing strategy. A discussion with the statistical office of Prague revealed that little to no data is collected about the environmental attitudes and behaviors of tourists. Therefore, it was difficult to

know whom to target when developing marketing strategies for the guidebook, and presumably for any other business oriented towards green tourism.

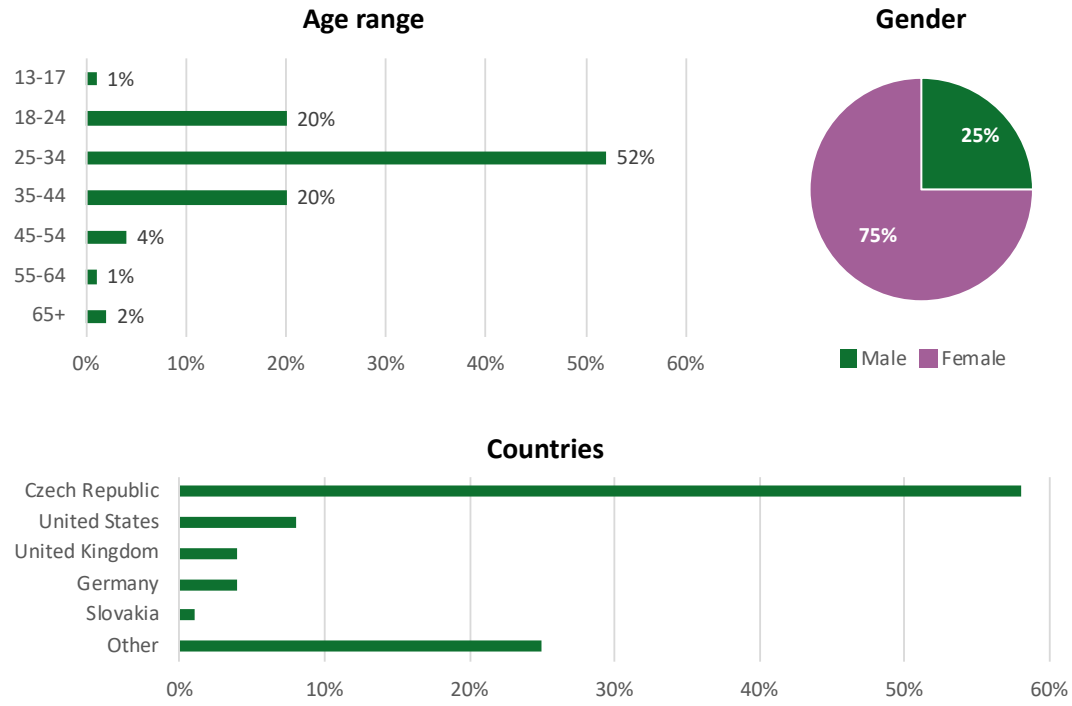


Figure 2: Characteristics of *Prague Green City Guide* Instagram followers

A review of the literature confirmed that very few studies have looked at the characteristics of pro-environmental urban tourists. While several market segmentation studies have been carried out in ecotourism and nature-based destinations, for example with visitors of protected natural heritage sites (Nickerson et al., 2016) and "sea and sand" destinations (Lopez-Sanchez & Pulido-Fernandez, 2016), there has been less of a focus on green tourism in urban environments. It was therefore decided that there is a need to further elucidate the characteristics of pro-environmental or "green" urban tourists, which is the goal of this MBA Master's Thesis.

1.2 Research Aims & Procedures

The aim of this Master's Thesis is to build on the field of urban green tourism research by gaining a better understanding of the demographics and psychographics of pro-environmental urban tourists. This will be achieved by segmenting tourists according to their environmental attitudes and comparing the demographics and trip interests of these segments. Findings of the present study will be used to form recommendations for how green tourism businesses (e.g. guides, hotels and tour operators) and local policymakers can develop better strategies and policies to harness existing pro-

environmental attitudes and increase pro-environmental behaviors among urban tourists. Specific recommendations will also be formulated to help *Prague Green City Guide* to improve its product and develop a stronger marketing strategy.

This Thesis will furthermore suggest a research framework that could be used by other researchers to conduct similar urban green tourism studies in other cities. There are currently such a wide variety of methodologies used to study green tourism that findings are difficult to compare and generalize. This thesis will explore the benefits and downsides of using a validated scale such as the New Ecological Paradigm (NEP) by Dunlap et al. (2000) as a tool to study pro-environmental tourists in cities around the world.

1.3 Research Questions

The primary research question of the present study is: *What are the characteristics of pro-environmental urban tourists?* This question will be explored more deeply with the below secondary research questions (SRQs):

- SRQ1: How pro-environmental are urban tourists in general?
- SRQ2: What are the demographics of pro-environmental urban tourists?
- SRQ3: What are the trip interests of pro-environmental urban tourists?

1.4 Structure of the Thesis

This thesis will be broken down into a total of six chapters. **Chapter 2** will conduct a literature review of the relevant academic literature, defining key terms and discussing what is already known about pro-environmental tourists. **Chapter 3** will detail the methods used in the current study, giving an overview of relevant methodologies that were considered, explaining the research approach, and describing the survey design, population, data collection procedure and data analysis approach. **Chapter 4** will consist of a summary of results, addressing each of the research questions. **Chapter 5** will provide a discussion of the results in light of the findings of previous studies, as well as limitations and future research directions. Finally, **Chapter 6** will conclude with recommendations for how businesses, including *Prague Green City Guide,* and policymakers, can apply the findings of the study to their design of environmental strategies and policies, respectively.

2 Literature review

2.1 Urban Green Tourism

"Urban green tourism" is the term that will be used in this Master's Thesis to refer to pro-environmental tourism in cities that saves resources and reduces greenhouse gas emissions. Previous studies that have looked at urban green tourism have defined it as follows:

> "Travel and exploration within and around an urban area that offers visitors enjoyment and appreciation of the city's natural areas and cultural resources, while inspiring physically active, intellectually stimulating and socially interactive experiences; promotes the city's long-term ecological health by promoting walking, cycling, public transportation; promotes sustainable local economic and community development and vitality; celebrates local heritage and the arts; is accessible and equitable to all" (Gibson et al., 2003, p. 324).

As can be seen from the definition above, while urban green tourism mainly focuses on environmental factors, it also takes into account the social and economic dimensions of tourism. It can therefore be seen as a subtype of **sustainable tourism,** which is more broadly defined as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (UNWTO, n.d.). Sustainable tourism is closely related to many of the UN's 17 Sustainable Development Goals (SDGs), including "decent work and economic growth" (SDG 8) and "responsible consumption and production" (SDG 12) (UNWTO, 2017a, p. 8). In fact, one of the key indicators of SDG 8 is to "devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products" (UN, n.d. a). A key aspect of sustainable tourism is a holistic focus on the three "pillars" of society, environment and economy, each of which have their associated goals (see Figure 3; UNEP & UNWTO, 2005). For example, the main aims set out by UNEP regarding the environmental impact of tourism are: "environmental purity," "resource efficiency," "biological diversity" and "physical integrity" (UNEP & UNWTO, 2005; see Figure 3). Given the difficulty in studying all aspects of sustainable tourism simultaneously, this Master's Thesis will focus mainly on the environmental aspects of urban green tourism.

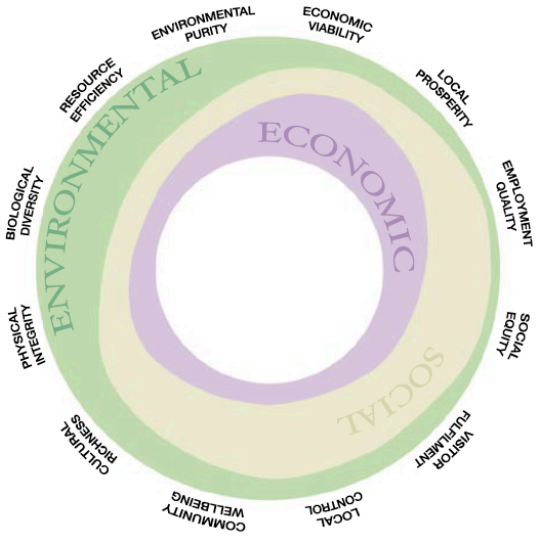


Figure 3: The twelve aims for sustainable tourism and relationship with the pillars of sustainability" (UNEP & UNWTO, 2005, p.32)

Urban green tourism can be differentiated from other subtypes of sustainable tourism, including "responsible tourism," (e.g. Caruana et al., 2014), "geotourism" (e.g. Boley et al., 2010), "transformative tourism" (UNWTO, 2016), "ethical tourism" (e.g. Malone et al., 2014) and "slow tourism" (e.g. Fullagar et al., 2012), in that it is the only term that specifically refers to pro-environmental tourism in cities. Urban green tourism should furthermore be discriminated from **ecotourism** (see Figure 4). Ecotourism specifically takes place in nature-based destinations and refers to "ecologically sustainable tourism with a primary focus on experiencing natural areas that fosters environmental and cultural understanding, appreciation and conservation" (Higham et al., 2001, p. 10). Urban green tourism, however, specifically refers to tourism in cities that has a smaller environmental impact and conserves natural resources.

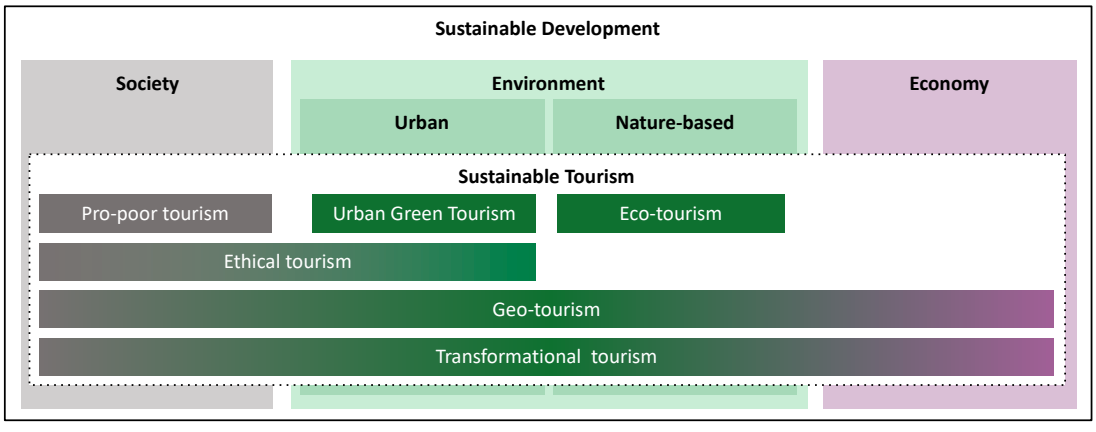


Figure 4: Urban Green Tourism as it relates to Sustainable Development, Sustainable Tourism and other forms of pro-environmental tourism

Note: self-elaborated diagram

2.2 Tourism Stakeholders

The severe environmental impacts of urban tourism, both on the local and global scale, require complex and integrated solutions coming from the public, private and civil sectors that also take into account social, cultural and economic factors (see Figure 5) (Hall et al., 2015; UNEP & UNWTO, 2005). Stakeholders with a scope as wide as the UN and as narrow as a local tourism business, or even an individual tourist, must all become part of the solution. Interactions and collaborations between the sectors, for example in the form of public-private partnerships, are also key. As detailed below, each sector is comprised of different players, each of whom have tools at their disposal to help achieve urban green tourism:

1. **Public sector.** Within the public sector, governments, municipalities and international organizations such as the World Tourism Organization (UNWTO) can attempt to improve the environmental performance of businesses and tourists with legislation and regulations (Hall et al., 2015), and "smart city" initiatives, which make use of information technology to achieve more efficient and sustainable uses of resources. Smart city initiatives can include "innovative transport systems, infrastructures, logistics and green and efficient energy systems" (Ahvenniemi et al., 2017, p. 236). A major role of public sector organizations such as the UNWTO is also awareness raising and knowledge dissemination (UNEP & UNWTO, 2005).

2. **Private sector.** The private sector mainly concerns the activities of local and international businesses (both oriented at tourists and other types of consumers), who can improve their environmental performance through corporate social responsibility (CSR) initiatives or green strategies such as the use of sustainability indicators, eco certification and labeling programs, life cycle assessment, carbon management and corporate social responsibility (Hall et al., 2015). The private sector has also produced a number of IT tools to enable businesses and cities to use resources more smartly, including sharing economy platforms.

3. **Civil sector.** Finally, the civil sector includes non-governmental organizations (NGOs) and advocacy groups who engage in actions such as awareness raising campaigns, protests or other efforts to advocate certain viewpoints and engage

the public. Civil engagement also involves actions taken at the individual or collective level, such as grassroots movements or sustainable consumption. In 1994, the Oslo Symposium defined sustainable consumption as:

> "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations" (UN, n.d. b).

Therefore, sustainable consumption relates to consumer decisions regarding their purchase decisions and how they choose to use natural resources such as water, energy and paper in their everyday lives.

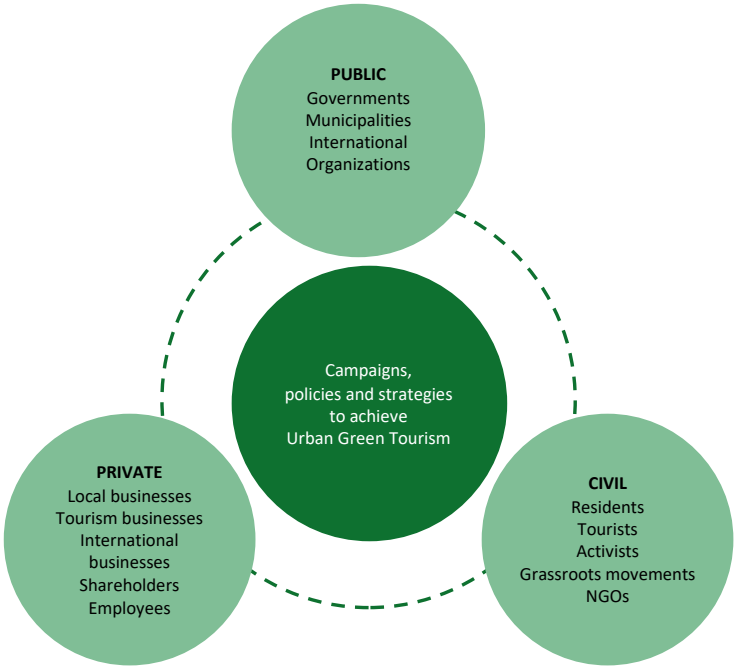


Figure 5: The three stakeholder groups in Urban Green Tourism

Note: own elaboration based on Hall et al., 2015; UNEP & UNWTO, 2005

While actions in all three sectors are vital to achieving a more pro-environmental tourism industry, it is clear that more needs to be done. As noted in the 2017 UNEP *Emissions Gap Report*, many countries are not on track to meet emissions targets required to keep global warming below two degrees Celsius: "most G20 countries require new policies and actions to achieve their NDC [Nationally Determined Contribution] pledges" (UNEP, 2017, p. 18). Juvan & Dolnicar (2016) suggest that the lack of sufficient action by the private and public sectors in the realm of sustainable tourism is due to a fear of

reduced tourism demand and revenues as well as increased operating expenses. In light of this situation, some scholars have argued for the importance of focusing on **"demand-side" strategies** that engage individual citizens, who can influence the global situation through their consumer decisions (Juvan & Dolnicar, 2016). Furthermore, a focus on behavioral change is thought to be a way to counteract the increased global consumption that comes along with economic and population growth. As Steg & Vlek (2009) write, "changes in human behavior are believed to be needed because technical efficiency gains resulting from, for example, energy-efficient appliances, home insulation, and water-saving devices tend to be overtaken by consumption growth" (p.309).

As a result of this greater emphases on demand-side strategies, several studies have chosen to examine the issue of green tourism from the perspective of tourists, investigating their attitudes and behaviors in order to come to conclusions about possible interventions. As Kiatkawsin & Han (2017) write, "green behaviors of tourists in an urban environment can contribute significantly to the overall environmental quality of a destination" (p.77). Indeed, it is not hard to imagine how the daily actions of tourists collectively have the power to influence the environmental situation for better or worse. Taleb Rifai, Secretary General of the UNWTO put it eloquently when he wrote: "With over one billion international tourists crossing borders every year, there are one billion opportunities for accelerating the shift towards a more sustainable future." (UNWTO, 2016, p. 8).

2.3 Environmental Behavior & Attitudes

In order to find demand-side solutions to the green tourism problem, many researchers have attempted to study the environmental behaviors and attitudes of tourists. **Pro-environmental behavior,** also known as **green behavior**, is defined as "any actions that protect the environment or minimize the negative impacts of human activity on the environment in either general daily practice or specific outdoor settings" (Miller et al., 2015, as cited in Kiatkawsin et al., 2017, p. 77).

Table 1 shows an overview of some of the main pro-environmental behaviors that have been described in the literature, which are divided into five types of action, adapted from Lee et al.'s (2013) and Smith-Sebasto & D'Costa's (1995) proposed frameworks of green behaviors: Civil Action, Financial Action, Physical Action, Persuasive Action and Avoidance Action. These categories indicate that environmental behavior is comprised of both a consumer and a behavioral element. The consumer element refers to what an

individual/business does or does not *buy,* while the behavioral element refers to what an individual/business does or does not *do.*

Table 1: Pro-Environmental Behaviors Described in the Literature

Types of Pro-Environmental Actions[a]	Pro-Environmental Behaviors & Actions
Civil Action	Donate money to pro-environmental organization (Lee et al., 2013)
	Become a member of a pro-environmental organization (Lee et al., 2013)
	Sign a pro-environmental petition (Lee et al., 2013)
	Pay higher taxes to protect the environment (Lee et al., 2013)
	Volunteer for a pro-environmental organization (Lee et al., 2013)
Financial Action	Buy products packaged in biodegradable containers (Lee et al., 2013; Sudbury-Riley & Kohlbacher, 2016)
	Buy products in refillable/reusable packages (Lee et al., 2013; Sudbury-Riley & Kohlbacher, 2016)
	Buy organic fruits and vegetables (Lee et al., 2013)
	Buy environmentally friendly products (Lee et al., 2013; Sudbury-Riley & Kohlbacher, 2016; Schultz & Zelezny, 1998)
	Buy eco-friendly cosmetics and hair products (own elaboration)
	Pay extra for environmentally friendly alternatives (Sudbury-Riley & Kohlbacher, 2016)
	Buy carbon offsets when travelling (Juvan & Dolnicar, 2016)
	Buy water-efficient devices such as low-flow taps and showerheads (Lee et al., 2013)
	Buy energy efficient appliances (e.g. lightbulbs, washing machines) (Lee et al., 2013)

Types of Pro-Environmental Actions[a]	Pro-Environmental Behaviors & Actions
	When on vacation, choose accommodation that uses energy and water efficient appliances (own elaboration)
	Use environmentally certified tourism providers (Juvan & Dolnicar, 2016)
	Buy locally grown food (Boley et al., 2011; Lee et al., 2013)
	Buy biodegradable laundry detergent (Lee et al., 2013)
Physical Action	Conserve water by turning off tap when washing dishes and brushing teeth (Lee et al., 2013)
	Turn off lights if leaving room for more than 10 minutes (Lee et al., 2013)
	Reduce the amount of household trash by reusing or recycling items to fullest extent possible (Lee et al., 2013)
	Takeaway food in biodegradable packaging (own elaboration)
	Walk, bike, carpool or use public transportation instead of using own car (Lee et al., 2013; Schultz & Zelezny, 1998)
	Use an eco-friendly taxi service (own elaboration)
	Print double-sided instead of single-sided (Egebark & Ekstroem, 2016)
	Reduce the temperature on thermostat in winter (Brown et al., 2013; Lee et al., 2013)
	Open windows in summer instead of air conditioning (Lee et al., 2013)
	Use glass instead of plastic bottles (own elaboration)
	Dry hands with an Airblade instead of paper towels (own elaboration)
	Use electronic instead of paper correspondence

Types of Pro-Environmental Actions[a]	Pro-Environmental Behaviors & Actions
	Collect rainwater or greywater (Bergin-Seers & Mair, 2009)
	Compost organic waste (Bergin-Seers & Mair, 2009)
	Reuse shopping bags (Homonoff, 2013; Lee et al., 2013)
Persuasive Action	Persuade others to buy fruits and vegetables loose instead of with packaging (Lee et al., 2013)
	Convince others to buy products with recyclable or reusable packaging (Lee et al., 2013)
	Convince others to conserve water (own elaboration)
Avoidance Action	Avoid buying environmentally harmful products (Sudbury-Riley & Kohlbacher, 2016)
	Avoid buying products from environmentally irresponsible companies (Sudbury-Riley & Kohlbacher, 2016)
	Refuse disposable tableware, including straws, napkins, cutlery and packaging (own elaboration)
	Refuse shopping bags (own elaboration)
	Make own household and hygiene products using non-toxic ingredients (e.g. laundry detergent, shampoo) (own elaboration)
	Avoid going on vacation to reduce environmental impact (Juvan & Dolnicar, 2016)
	Avoid going on vacation far from home to reduce emissions from transport (Juvan & Dolnicar, 2016)
	Dismiss a mode of transport primarily to avoid air pollution (Juvan & Dolnicar, 2016)
	Avoid tourism providers who do not follow environmental protection standards (Juvan & Dolnicar, 2016)

[a] Note: (based on Lee et al., 2013; Smith-Sebasto & D'Costa, 1995)

In the tourism context, environmental behavior mainly refers to activities that reduce unnecessary use of water, energy and other natural resources, as well as reducing pollution and greenhouse gas emissions (Lee et al., 2016; Schultz & Zelezny, 1998; Smith-Sebasto and D'Costa, 1995; Sudbury-Riley et al., 2016), though it can also include boycotting, green purchasing and civic engagement (e.g. voluntourism) (Dolnicar & Leisch, 2008; Juvan & Dolnicar, 2016; Lee et al., 2016). Booking.com's 2017 *Sustainable Travel Report*, conducted with over 11,000 world travelers, found that over half of respondents thought that the most important aspect of sustainable tourism is staying in eco-friendly accommodation, followed by saving water by requiring sheets and towels to be replaced less often, and using lower quantities of provided amenities such as shampoo (Booking.com, 2017). This survey suggests that "sustainable tourists" understand sustainable tourism to mainly relate to environmental issues concerning behaviors at accommodation facilities. Juvan & Dolnicar (2016) propose the following definition to describe **environmentally sustainable tourist behavior**:

> "Intended environmentally sustainable tourist behavior is when a person makes a vacation-related decision or displays behavior at the destination that is different from how they would have otherwise decided or behaved for reasons of environmental sustainability" (Juvan & Dolnicar, 2016; p. 34).

Whether or not people engage in pro-environmental behaviors, on vacation or otherwise, is driven by a number of factors, or *antecedents.* These antecedents can be either external or internal. *External factors* include economics and regulations, incentives, availability of options, product attributes, infrastructure, and default settings and *internal factors* include the habits, attitudes, values, interests, responsibilities knowledge, personality, awareness, cognitive limitations, perceived behavioral control and emotions of people (Joshi & Rahman, 2016; Kollmuss & Agyeman, 2002; Steg & Vlek, 2009). Figure 6 depicts a schematic diagram developed by Kollmuss & Agyeman (2002) to demonstrate the complexity of pro-environmental behavior. The authors note, however, that there are so many factors influencing whether people engage in pro-environmental behavior, that it is almost impossible to come up with a truly comprehensive model (Kollmuss & Agyeman, 2002). Nevertheless, such diagrams help to point out some of the most important antecedents to pro-environmental behavior, including environmental attitudes.

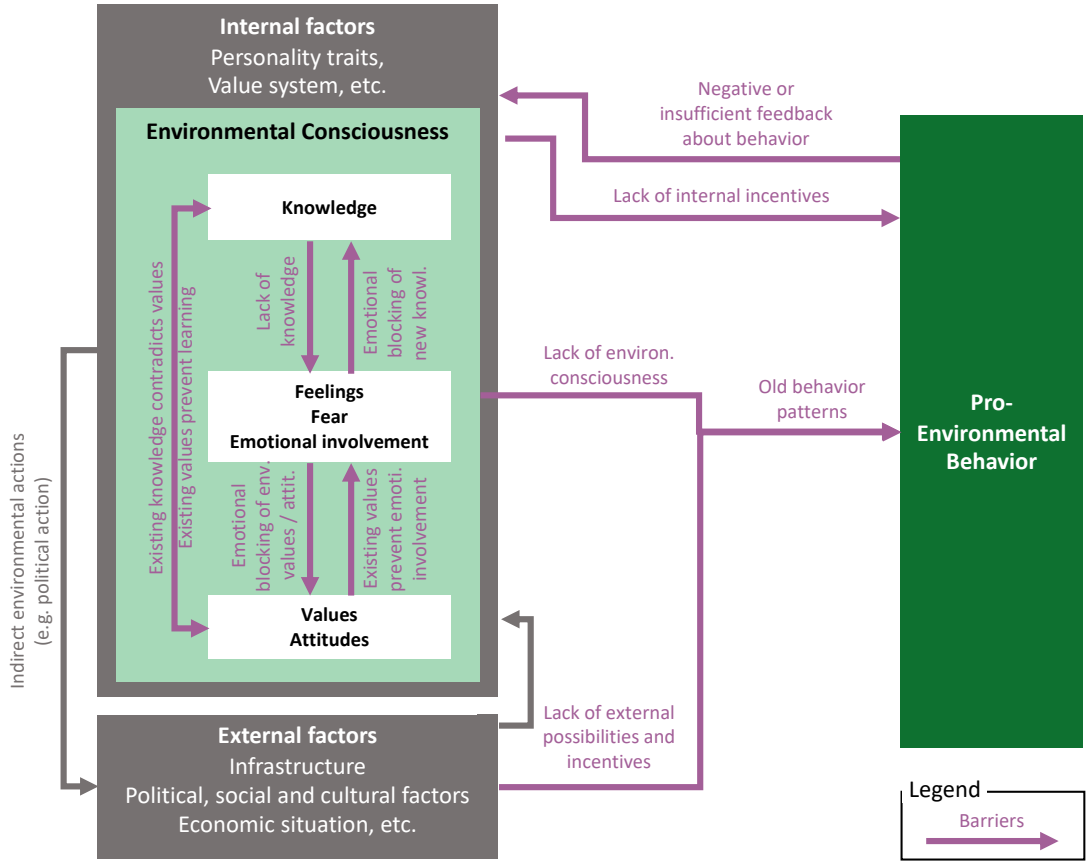


Figure 6: "Model of pro-environmental behavior" (Kollmuss & Agyeman, 2002)

Environmental attitudes are among the most commonly studied antecedents to environmental behavior, often measured in tourism research as an indicator of tourists' likelihood to engage in green behaviors. **Environmental attitudes** are defined as "a psychological tendency expressed by evaluating the natural environment with some degree of favor or disfavor" (Hawcroft & Milfont, 2010, p. 143). Attitudes are closely related to values, beliefs and concerns, and in many studies are taken to mean the same thing (Kollmuss & Agyeman, 2002; Zografos & Allcroft, 2007). It is logical to think that people with stronger pro-environmental attitudes would be more willing and likely to engage in pro-environmental behaviors, even when tradeoffs regarding convenience, price or quality are required (Bergin-Seers & Mair, 2009). Indeed, this has been supported by research showing that environmental attitudes do predict environmental behaviors (e.g. Dunlap et al., 2000; Hawcroft & Milfont, 2010; Guagnano et al., 1995; Oreg & Katz-Gerro, 2006).

2.4 Known Characteristics of Pro-Environmental Tourists

Measuring the environmental attitudes of tourists has allowed several researchers to come to a better understanding of how these tourists can be characterized in terms of demographics, as well as psychographics such as preferences, motivations, consumer habits and interests. This information can be used to inform business and policy strategies relating to green tourism. Most studies, however, were conducted in ecotourism and nature-based destinations.

An early study by Dunlap and Heffernan (1975) examined the environmental attitudes of outdoor recreationists and found that people with stronger pro-environmental attitudes were more likely to prefer engaging in "appreciative" activities (e.g. hiking and photography) and less likely to prefer "consumptive" activities (e.g. hunting) (Dunlap & Heffernan, 1975). More broadly, a study by Dolnicar & Leisch (2008), conducted with the general population of Australia, found that pro-environmental individuals had vacation preferences oriented towards nature and sport and away from luxury and entertainment. Other studies have shown that pro-environmental tourists tend to have a higher willingness to pay for green tourism products (Kang et al., 2012; Lopez-Sanchez & Pulido-Fernandez, 2016), as well as for accommodation, food and fees (Nickerson et al., 2016), a higher likelihood of participating in nature-based tourism (Luzar et al., 1995) and higher intentions to stay in green hotels (Han et al., 2011; Han et al., 2015). Therefore, while pro-environmental tourists may be less interested in consumptive activities, they are also potentially more willing to spend more to engage in environmentally friendly activities on holiday, making them a high value segment. However, compared to tourists in ecotourism and nature-based destinations, far less is known about the demographics of pro-environmental urban tourists.

Regarding demographics, several segmentation studies conducted in the tourism context did not find any, or only a weak, relationship between environmental attitudes and demographics (Formica & Uysal, 2002; Kim et al., 2006; Uysal & Jurowski, 1994). Other studies, on the other hand, found that pro-environmental individuals are more likely to be female and older as well as having higher incomes and education (Dolnicar, 2004; Dolnicar & Leisch, 2008; Dunlap et al., 2000; Han et al., 2011; Higham et al., 2011; Zografos & Allcroft, 2007). Furthermore, higher per capita GDP has also been shown to be related to greater pro-environmental attitudes (Franzen & Vogl, 2013), though as Milfont & Markowitz (2016) point out, this relationship is complex. On one hand, "post-materialistic" values (i.e. "support for greater public participation in government decision, protecting

freedom of speech" (Milfont & Markowitz, 2016, p. 113)), which are associated with more democratic and wealthier countries, are known to be related to people being more willing to spend money on sustainable consumption. On the other hand, it is known that people who personally experienced or observed environmental degradation, mainly those living in poorer developing countries, are more likely to be pro-environmental (Milfont & Markowitz, 2016). Therefore, there is not a clear linear relationship between GDP and environmental attitudes.

Comparatively, there is a lack of studies looking at the demographics and psychographics of tourists in urban destinations. Kim et al.'s (2006) study with tourists visiting an ecological film festival in the Brazilian city of Goias is the only urban tourism segmentation study identified that specifically studied the demographics and psychographics of urban green tourists using the NEP scale. Kim et al. (2000) did not find any demographic differences between tourists with high and low environmental attitudes. They did find that tourists with stronger pro-environmental attitudes had a higher motivation to engage in ecologically-related activities (Kim et al., 2006). The present study will attempt to further build on this research and determine whether urban tourists with pro-environmental attitudes can be distinguished from less pro-environmental urban tourists based on their demographics and trip interests.

3 Methods

3.1 Overview of Relevant Methodologies

Most studies that have tried to describe the characteristics of pro-environmental tourists have made use of some kind of segmentation methodology. Essentially market segmentation involves dividing a study population according to a certain variable, and then comparing the resulting groups according to their psychographics and demographics. As Zografos & Allcroft (2007) write:

> "to perform segmentation, psychographics focuses on one… variable as a basis for separating groups of consumers and uses other psychographic and demographic information on them to describe each segment and identify its different consumption requirements that can be satisfied with different marketing mixes" (p.46).

Indeed, segmentation is a useful tool for marketers to use to better understand their customers. Market segmentation has been described by previous researchers as an effective way for destinations to identify and then describe tourists who would be more likely to behave in pro-environmental ways (Higham et al., 2001; Veisten et al., 2015). The rationale behind this segmentation is that by better understanding the psychographics and demographics of pro-environmental tourists, businesses and destinations can more effectively target them (Dolnicar & Leisch, 2008; Fuller et al., 2005; Zografos & Allcroft, 2007). As put by Dolnicar & Leisch (2008): "one possible avenue of integrating environmental responsibility in tourism planning is to try to attract consumers who are intrinsically interested in protecting the environment and consequently behave in a way that leads to a smaller ecological footprint" (p. 673).

However, as summarized in Table 2, there is a lack of consistency in green tourism segmentation research, and a notable lack of research looking at pro-environmental tourists in an urban context. Multiple methods have been used to define segments, from *a priori* approaches using known characteristics of tourists (Dolnicar, 2004) to more data-driven *a posteriori* approaches using self-elaborated rating scales (Bergin-Seers & Mair, 2009; Boley et al., 2010; Dolnicar & Leisch, 2008; Lopez-Sanchez & Pulido-Fernandez, 2016; Nickerson et al., 2016; Veisten et al., 2015). Some studies have also used existing validated scales such as the NEP (Higham et al., 2001; Kim et al., 2006; Luo & Deng, 2008; Zografos & Allcroft, 2007). Furthermore, studies have been conducted in widely different types of

destinations with different population types, and described their defined segments using various terms. The wide range of ratings scales and methodologies used in environmental behavior research has been described as an “anarchy of measurement,” leading some to call these studies “unsystematic” and difficult to compare (Hawcroft & Milfont, 2010, p. 143).

What follows is a short summary of some of these segmentation studies to demonstrate their heterogeneity in methodology (see Table 2 for an overview).

- Boley et al. (2010) and Nickerson et al. (2016) used a self-elaborated rating scale called the Geotraveler Tendency Scale to segment tourists in a natural heritage area in the US, as being “mild,” “moderate,” or “strong” sustainable travelers (termed “geotravelers” in the paper).
- Lopez-Sanchez & Pulido-Fernandez (2016) also used a self-elaborated rating scale based on environmental attitudes and behaviors to segment tourists in a “sun and sand” destination in Spain, however their segmentation was based on a measure of “sustainable intelligence.”
- Bergin-Seers & Mair (2009) attempted to identify green tourists with a combination of a “Green Consumer Scorecard,” in addition to a self-elaborated series of questions relating to a) tourists’ green behaviors at home (energy use, recycling/composting, saving water), b) attitudes towards environmentally accredited tourism providers, c) habits regarding search for environmental information while travelling and d) recent green tourism purchasing behaviors (e.g. purchase of tourism services based on environmental considerations).
- Dolnicar & Leisch (2008) segmented tourists according to their reported past environmental behaviors.
- Veisten et al. (2015) used a self-elaborated scale including a number of questions including nature-orientation, attitudes towards national park facilities and demographics to cluster tourists.

As can be seen, there is a lack of consistency in how tourists have been segmented in past studies.

Table 2: Sustainable Tourism Segmentation Studies

Author/s	Rating Scale used	Study population
Bergin-Seers & Mair (2009)	Self-elaborated rating scale (Green Consumer Scorecard)	General population Australia
Dolnicar & Leisch (2008)	Self-elaborated rating scale + New Ecological Paradigm (NEP)	General population Australia
Kim et al. (2006)	Self-elaborated rating scale + 15-item NEP	Urban festival visitors Brazil
Lopez-Sanchez & Pulido-Fernandez (2016)	Self-elaborated rating scale ("sustainable intelligence")	"Sun and sand" tourists Spain
Luo & Deng (2008)	REP scale + 15-item NEP scale	Nature-based tourists China
Nickerson et al. (2016)	Self-elaborated (Geotraveler Tendency Scale (GTS))	Nature-based tourists USA
Uysal & Jurowski (1994)	15-item NEP	Nature-based tourists US Virgin Islands
Veisten et al. (2015)	Self-elaborated scale	Nature-based tourists Norway
Zografos & Allcroft (2007)	Self-elaborated rating scale + 15-item NEP	Nature-based tourists Scotland

Of the green tourism segmentation studies listed in Table 2, the 15-item NEP scale by Dunlap et al. (2000) was only used in four studies, those by Luo & Deng (2008), Kim et al. (2006), Higham et al. (2001) and Zografos & Allcroft (2007). These studies have the advantage of being more comparable and systematic, given that the 15-item NEP scale is considered to be one of the most highly validated environmental attitude scales that exists (Hawcroft & Milfont, 2010). The NEP scale was originally developed by Dunlap & Van Liere in 1978 and then later revised by Dunlap et al. (2000) to form an expanded and modernized 15-item scale. This 15-item scale has been extensively validated, has been

used in hundreds of studies across a variety of countries and contexts, and has been found to be a sound predictor of pro-environmental behaviors (Dolnicar & Leisch, 2008; Hawcroft & Milfont, 2010; Luzar et al., 1995; Schultz & Zelezny, 1998). The NEP is a measure of an environmental worldview or "social paradigm" regarding the relationship of humans to the natural environment (Dunlap et al., 2000). A high score on the scale captures an "ecocentric" (or nature-centered) worldview that is posited to have arisen as a counterpoint to a more anthropocentric (or human-centered) worldview (Dunlap & Van Liere, 1978; Hawcroft & Milfont, 2010). Ecocentrism is defined as "concern for nature, the biosphere and all living things" (Zelezny, Chua & Aldrich, 2000, p. 454). As opposed to ecocentrism, anthropocentrism is defined as "the belief that nature exists primarily for human use and has no inherent value of its own" (Dunlap et al., 2000, p. 7).

The 15 questions of the NEP (listed in Appendix A) are designed to measure the following dimensions, as proposed by Dunlap (2000):

1. **Recognition of the limits to growth** (questions 1, 6 and 11),
2. **Anti-anthropocentrism** (questions 2, 7 and 12),
3. **The fragility of nature's balance** (questions 3, 8 and 13),
4. **Rejection of the exceptional position of mankind** (shortened as "*Anti-Exemptionalism*", questions 4, 9 and 14), and
5. **The possibility of the occurrence of an eco-crisis** (questions 5, 10 and 15).

While the NEP scale has been administered to tourists in previous studies, it was usually in rural, nature-based or highly specific contexts (e.g. Dolnicar & Leisch, 2008; Formica & Uysal, 2002; Grybovych et al., 2005; Kiatkawsin & Han, 2017; Kim et al., 2006; Luo & Deng, 2008; Luzar et al., 1995; Wurzinger & Johansson, 2006). Only one study was found that used the NEP scale to segment urban tourists, which was conducted by Kim et al. (2006) with tourists visiting an international ecological film festival in the city of Goias in Brazil. Kim et al. (2006) administered the 15-item NEP as well as a separate battery of questions relating to trip motivation to a total of 412 visitors at the film festival. Festival visitors were segmented into three groups according to their NEP scores, with the top 25th percentile classified as "high NEP," the lowest 25th percentile classified as "low NEP" and the middle 50% classified as "medium NEP." For the sake of comparability and consistency, the same segmentation approach was used in the current study.

3.2 Research Approach

Given the above described inconsistency in research methodology examining the characteristics of pro-environmental tourists, the present study chose to utilize the approach deemed to be most systematic, namely market segmentation using the highly validated NEP scale by Dunlap et al. (2000). Given its wide acceptance and applicability in multiple contexts and cultures, the 15-item NEP scale was considered an appropriate scale to use in the present study.

Furthermore, the NEP scale measures environmental attitudes, which was determined to be preferable to studying environmental behaviors for the following reasons. First, studying attitudes it is easier and more resource-effective than studying behavior, which would require costly observational studies. Second, measuring attitudes may in fact be more informative than studying behaviors, because while a single study would struggle to measure all possible environmental behaviors (including those that have a more purchase-related as well as behavioral element), environmental attitudes may be more reflective of how an individual would behave in any situation. With regard to the latter point, it is of course possible that attitudes can vary depending on context, however it is likely that this occurs in a predictable way (e.g. people tend to always be less eco-conscious when on holiday than at home). Third, there are several existing validated scales to measure pro-environmental attitudes, including the NEP, while very few truly comprehensive environmental behavior scales exist, particularly not in the tourism context.

An additional benefit of the 15-item NEP scale versus other environmental attitudes scales is that it is relatively quick and easy to administer, an important factor to consider when conducting a survey with tourists. Indeed, experts consulted during the design of the survey recommended using a validated scale of maximum five minutes in length for optimal results. The NEP scale is significantly shorter than many other environmental attitude and behavior scales, for example, the Ecological Attitudes Inventory (EAI) (Milfont & Duckitt, 2010), which includes 120 statements evenly broken down into 12 subscales. The Ecology Scale (Maloney, Ward, & Braucht, 1975), and the Environmental Concern Scale (Weigel & Weigel,1978), are also longer scales that are considered to no longer apply to contemporary environmental issues (Hawcroft & Milfont, 2010). While each scale has its strengths and weaknesses, it was decided that for the purpose of segmenting urban tourists in the present study, the 15-item NEP scale (Dunlap et al., 1978; Dunlap, 2000) would be most appropriate.

The present study therefore used NEP scores to segment tourists and then compared these segments according to demographic and psychographic data. Demographics were selected that are commonly collected in tourism market segmentation research, known to be related to environmental attitudes. The main psychographic variable studied was trip interests, which reflect the personality and value system of people and are often included in tourism research to help tourism planners and businesses to know how to develop appropriate products for their customers.

3.3 Survey Design

The survey questions were consulted with several experts and tested on colleagues before starting the official research. The survey was designed with three main parts: demographics, the NEP scale and trip interests, as described below:

Section 1: Demographics

Demographics included in the survey were: age, gender, highest educational level, income, home country, marital status, and whether or not respondents had children. For the sake of analyzing the data, some of the data had to be recoded as follows:

- Gender → Male=0; Female=1
- Children → No=0; Yes=1
- Residence type → Lives in the countryside=0; Lives in a city=1
- Home Country → nominal per capita Gross Domestic Product (GDP) as per IMF data (IMF, 2017)
- Marital status → Not in a relationship=0; In a relationship=1
- Educational level → No university education=0; University education=1

Section 2: NEP scale

Environmental attitudes were measured by the 15-item NEP scale (Dunlap et al., 2000). Tourists were asked to rate how much they agreed with each of the 15 statements of the scale using a five-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4= agree, and 5=strongly agree). A slight adaptation was made to the wording of one question to make it more understandable to non-native English speakers: in question 4 the word “ingenuity” was replaced with “cleverness.”

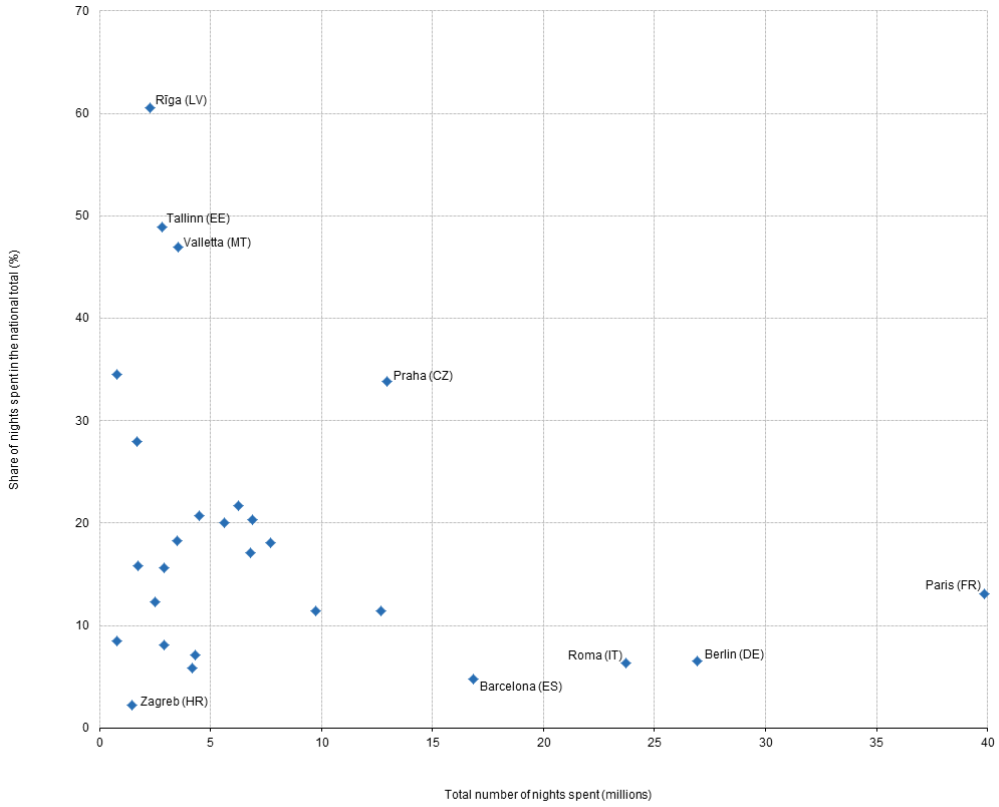
Section 3: Trip Interests

A checklist of trip interests was included for tourists to indicate which activities they are interested in on the current trip. These trips interests were based on the contents of *Prague Green City Guide* as well as other guidebooks, and were as follows: *Sightseeing, History, Art, Music, Food, Nature, Biking & Hiking, Shopping, Markets, Nightlife, Meeting Locals.*

A full copy of the survey as it was administered to tourists can be seen in Appendix A.

3.4 Population

The above survey was conducted with tourists in the city of Prague, the capital of the Czech Republic. Prague was selected because it is a major touristic hub in Europe, with the 7th highest number of bed-nights in 2016 (European Cities Marketing, 2017) and is where the author of this study lives. Prague has one of the highest tourism densities in the EU, defined as the number of overnight stays per square kilometer (Eurostat, 2014). Overnight stays in Prague make up around a third of overall national overnight stays, indicating that urban tourism is an important to the overall Czech tourism market (Figure 7). While Prague is not commonly seen as a "green" destination, the city does have many green spaces, excellent public transport and a host of local green businesses (Day & Hebrová, 2016). It was ranked 9th out of 100 cities on the Arcadis *Sustainable Cities Index* (Arcadis, 2016), however on the Siemens *European Green City Index* it ranked below average on a number of environmental indicators (Figure 8; Economist Intelligence Unit, 2009). Prague therefore has potential to be further developed as a green tourism destination.



(') The figure shows (subject to data availability) the city in each country with the highest share of nights spent in the national total. Cyprus and the United Kingdom: not available. A number of other cities did not have any data (see database for more details). Alternative reference years were used in some cases (see database for more details).

Figure 7: "Most popular city destinations — nights spent in tourist accommodation establishments, 2013 (') Cities" (Eurostat, 2014)

Figure 8: Prague's performance on the Siemens *European Green City Index* (Economist Intelligence Unit, 2009, p. 40)

3.5 Data Collection

The survey was conducted in person with tourists in Prague at a variety of touristic locations, at different times of day and days of the week, in the month of February 2018. The main locations chosen to conduct the survey were the Prague funicular, the Prague Castle, the Charles Bridge and the main train station. Locations were chosen that were likely to capture a representative cross-section of tourists, given that most of them are visited by all tourists visiting Prague. Tourists were randomly selected. The language of the survey was English, and tourists completed surveys in writing on paper. All surveys were conducted by the author of this paper, who remained present while respondents filled in surveys in order to help clarify questions. In total 292 tourists were approached, of which 268 completed the survey, 12 declined and 12 submitted incomplete surveys.

3.6 Data Analysis

Data analysis for this study followed several steps. First, demographics and trip interests of the overall study population were examined using descriptive statistics. Frequencies were calculated for each demographic and trip interest. Second, NEP scores were calculated. Given that high scores on odd-numbered questions represent an ecocentric worldview and high scores on even-numbered questions represent an anthropocentric worldview, scores on the even-numbered questions were reversed to arrive at the final overall score. The final score was calculated by taking the average of scores on each of the 15 questions, after reversal of scores on even questions. A higher score therefore indicated more ecocentric attitudes, with a lower score hinting at more anthropocentric attitudes. NEP scores of the population were described in terms of the frequency of responses to each question, and the means and standard deviations of scores. Third, the five subscales recommended by Dunlap et al. (2000) were also calculated.

Next, regressions were run to analyze whether a) there were any significant relationships between the dependent variable (NEP score) and the independent variables, and b) analyze if any demographics were significantly related to any of the five NEP subscale scores. A multiple linear regression was selected as the mode of analysis because it has been used in similar studies (e.g. Luo & Deng, 2008), and because it is a common way to find a relationship between a single continuous dependent variable and multiple continuous, categorical and/or dummy independent variables. The assumption of no

multicollinearity of independent variables was tested using the Variance Inflation Factor (VIF), which was between 1 and 10 for all variables, indicating no multicollinearity (SPSSTests.com, 2015). Given that the remaining independent variables are dummy variables (0 or 1), they were assumed to have a linear relationship with the dependent variable. However, the three continuous independent variables (GDP, income and age) were found to have a non-normal distribution, and therefore were excluded from the regression model.

Finally, the study population was segmented into three groups using percentiles, as was done in Kim et al.'s (2006) study, which also conducted segmentation of urban tourists using the NEP scale. A similar approach was used for the sake of making this study more consistent and comparable with previous research. The upper 25th percentile was labeled as "high" NEP, the lower 25th percentile as "low" NEP and the middle 50% as "medium" NEP. Using SPSS, a series of Chi-Square tests were used to compare the three groups on the dummy independent variables (e.g. gender, relationship status, etc.). For the continuous variables, the Kruskal-Wallis test was selected because it is a non-parametric test that is appropriate to use when there are no assumptions of normality in the data, and when more than two groups are being compared. Furthermore, this test is suitable for comparing groups on continuous independent variables (in this case income, age and GDP). All statistical tests were run using IBM SPSS software version 25.

4 Results

This chapter will describe the results of the study, including the overall demographics **(4.1)**, trip interests **(4.2)** and NEP scores **(4.3)** of the study population, a regression of demographics and trip interests against NEP scores **(4.4.)** and NEP subscales **(4.5),** and finally, comparisons of the characteristics of NEP groups **(4.6)**.

4.1 Demographics

Demographics of the study sample are summarized in Table 3. Overall, the study population was well balanced in terms of gender, with 51.12% women and 48.88% men. The majority (71.54%) of respondents had a university education, earned between 0-40,000 (73.51%) Euros per year (net), and lived in cities (80.15%). Of those living in cities, about half lived in cities with greater than 1M inhabitants, and the other half in cities with fewer than 1M inhabitants. In terms of age, the biggest group was between the age of 16-25 (41.67%) and the second biggest group was between the age of 26-35 (31.44%). However, respondents from all age-groups were represented, with the lowest age being 16 and the highest age 74. 38 countries from different parts of the world were listed as the "home country" of respondents, with the biggest groups coming from the UK (19.75%), Germany (15.23%), and the Netherlands (12.76%).

Table 3: Demographics and NEP Scores of the Study Sample

Demographic	Count	% of total	Average NEP Score[a]
Gender (N=268)			
Female	137	51.12%	3.52
Male	131	48.88%	3.47
Education (N=267)			
University	191	71.54%	3.49
Secondary	70	26.22%	3.53
Primary	6	2.25%	3.40
Marital Status (N=268)			
Married/In a relationship	188	70.1%	3.51
Single/Widowed	80	29.9%	3.47
Children (N=258)			
Yes	63	24.4%	3.43
No	195	75.6%	3.53

Demographic	Count	% of total	Average NEP Score[a]
Income (N=259)			
0-20,000	124	47.88%	3.53
80,001-100,000	9	3.47%	3.57
40,001-60,000	31	11.97%	3.40
20,001-40,000	73	28.19%	3.47
60,001-80,000	13	5.02%	3.37
100,000 or more	9	3.47%	3.53
Residency type (N=267)			
City above 1M	108	40.45%	3.50
City below 1M	106	39.70%	3.52
Countryside	53	19.85%	3.44
Age (N=264)			
16-25	110	41.67%	3.51
26-35	83	31.44%	3.51
36-45	39	14.77%	3.45
46-55	15	5.68%	3.48
56-65	13	4.92%	3.39
66-75	4	1.52%	3.48
Home Country (N=259)			
Argentina	6	2.47%	3.51
Austria	8	3.29%	3.27
Belgium	4	1.65%	3.53
Bulgaria	1	0.41%	4.00
Canada	5	2.06%	3.85
China	3	1.23%	3.29
Czech Republic	2	0.82%	3.10
Finland	9	3.70%	3.49
France	21	8.64%	3.50
Germany	37	15.23%	3.68
Hungary	1	0.41%	3.87
India	6	2.47%	3.57
Ireland	1	0.41%	3.60
Israel	4	1.65%	3.34
Italy	5	2.06%	3.50
Jordan	1	0.41%	2.53
Mexico	3	1.23%	3.44
Netherlands	31	12.76%	3.44

Demographic	Count	% of total	Average NEP Score[a]
Poland	5	2.06%	3.31
Portugal	3	1.23%	3.98
Russia	11	4.53%	3.30
Slovakia	3	1.23%	3.13
Spain	9	3.70%	3.47
Sweden	5	2.06%	3.45
Turkey	1	0.41%	3.00
United Kingdom	48	19.75%	3.60
USA	10	4.12%	3.38

[a]NEP scores were calculated by taking the average of scores on all 15 questions, each one measured on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree).

4.2 Trip interests

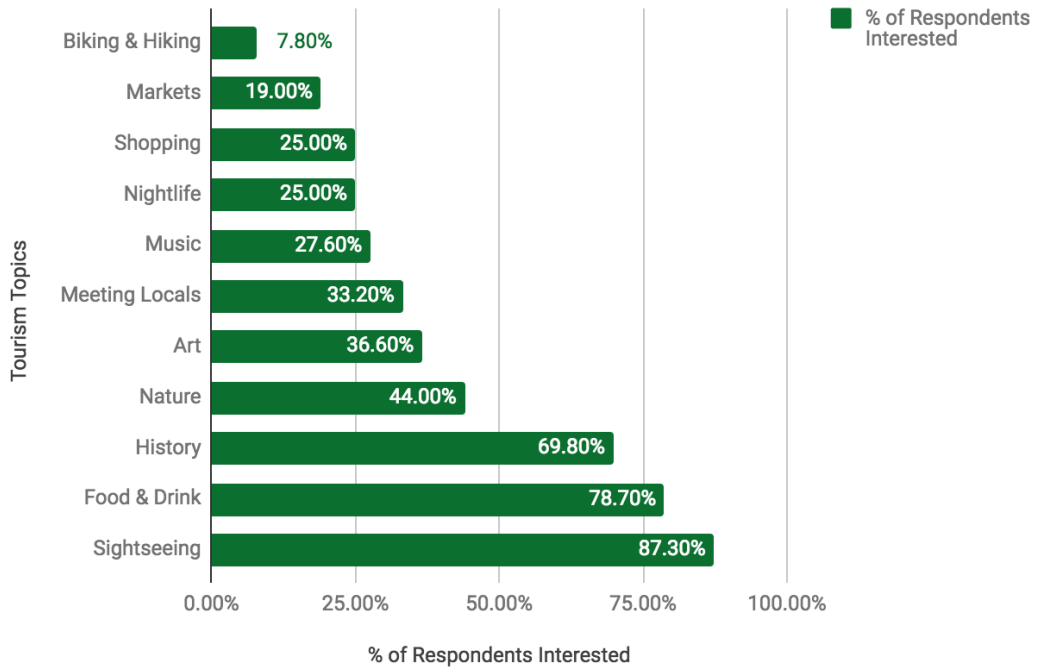


Figure 9: Descriptive statistics of tourists' trip interests

As can be seen in Figure 9, in terms of trip interests, the majority of respondents were interested in sightseeing (87.3%), history (69.8%) and food and drink (78.7%). The topics of less interest overall were biking and hiking (7.8%), markets (19%), nightlife (25%) and shopping (25%).

4.3 NEP scores

Table 4: Distribution of Answers and Mean Scores on the 15-item NEP scale

#	Questions [a]	Answer distribution (%)	Mean	Std. Dev.
1	We are approaching the limit of the number of people the earth can support.	4 | 14.2 | 26.9 | 39.9 | 15.3	3.49	1.03
2	Humans have the right to modify the natural environment to suit their needs. (reversed)	6 | 25.4 | 22.4 | 37.7 | 9.3	3.19	1.09
3	When humans interfere with nature it often produces disastrous consequences.	4 | 8.6 | 15.7 | 50.4 | 21.3	3.75	1.03
4	Human cleverness will insure that we do NOT make the earth unlivable. (reversed)	6 | 21.4 | 35.3 | 28.2 | 9.4	3.14	1.05
5	Humans are severely abusing the environment.	3 4 | 13.1 | 53.2 | 26.6	3.95	0.93
6	The earth has plenty of natural resources if we just learn how to develop them. (reversed)	31.1 | 42.7 | 17.6 | 6 | 3	2.07	0.99
7	Plants and animals have as much right as humans to exist.	2 | 8,9 | 11.2 | 34.7 | 42.9	4.07	1.05
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations. (rev.)	3 | 11.2 | 22.8 | 47.8 | 15.7	3.63	0.97
9	Despite our special abilities humans are still subject to the laws of nature.	6 | 24.1 | 48.5 | 21.8	3.86	0.82
10	The so–called ''ecological crisis'' facing humankind has been greatly exaggerated. (rev.)	3 | 18.9 | 28.3 | 31.3 | 18.1	3.42	1.09
11	The earth is like a spaceship with very limited room and resources.	4 | 13.6 | 26.4 | 38.5 | 17.7	3.53	1.05
12	Humans were meant to rule over the rest of nature. (reversed)	3 | 10.7 | 22.1 | 35.0 | 39.3	3.77	1.08
13	The balance of nature is very delicate and easily upset.	2 | 11.3 | 18.9 | 48.7 | 19.3	3.72	0.97
14	Humans will eventually learn enough about how nature works to be able to control it. (reversed)	5 | 31.7 | 35.5 | 22.0 | 6	2.93	0.98
15	If things continue on their present course, we will soon experience a major ecological catastrophe.	2 | 6 | 19.1 | 41.2 | 31.8	3.95	0.97

Legend: Strongly disagree / Strongly agree for rev. | Disagree / Agree for rev. | Neither agree nor disagree | Agree / Disagree for rev. | Strongly agree / Strongly disagree for rev.

[a] All questions taken from the 15-item NEP (Dunlap et al., 2000), with high scores on odd-numbered questions representing ecocentric worldviews, and high scores on even-numbered questions representing anthropocentric worldviews (scores on even numbered questions were reversed).

The average NEP score for the study population was 3.5 (standard deviation=.42), with a minimum score of 2.27 and a maximum score of 4.8. Table 4 shows the descriptive statistics for each question of the 15-item NEP scale. As can be seen, respondents had a score above three on 13 out of 15 questions, indicating an overall pro-environmental or ecocentric worldview of this population. Only two of the questions had mean scores below three (after score reversal), which were questions 6 (*"The earth has plenty of natural resources if we just learn how to develop them"*) and 14 (*"Humans will eventually learn enough about how nature works to be able to control it"*). Question 4 (*"Human cleverness will insure that we do NOT make the earth unlivable"*) also had a relatively low average score of 3.14.

4.4 Regression Analysis of NEP Scores

To assess the relationship between the independent variables and the dependent variable (NEP score), a linear regression analysis was conducted in SPSS. The model of the regression is shown in Figure 10. The overall average NEP score was regressed against the following independent variables:

- Demographics
    - Gender (0=male, 1=female)
    - Residence type (0=countryside, 1=city)
    - Education (0=no university education, 1=university education)
    - Relationship status (0=single/widowed, 1=married/in a relationship)
    - Children (0=no children, 1=one or more children)
- Trip Interests (0=not interested, 1=interested):
    - Sightseeing
    - History
    - Art
    - Music
    - Food & drink
    - Nature
    - Biking & hiking
    - Shopping
    - Markets
    - Nightlife
    - Meeting locals

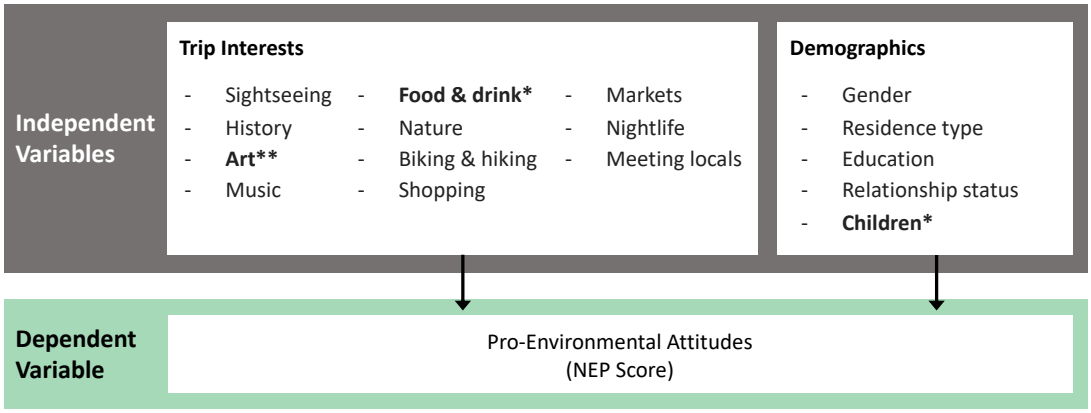


Figure 10: Model of the regression analysis

Note: *=statistically significant at the *p*=.05 level; **=statistically significant at the *p*=.01 level

The regression was run in a stepwise manner, leading to a reduced model with a model fit of .074 (adjusted *R*-squared). Therefore, the model was only able to explain 7.4% of environmental attitudes, but some variables were still significant at the $p<.05$ level. As can been seen in Table 5, only the variables *Children* ($p=.023$), *Art* ($p=.002$) and *Food* ($p=.029$) were statistically significant predictors in the model. Contrary to expectations, people without children had more pro-environmental attitudes than people with children. Interest in art and food predicted higher NEP scores. The variable *Nature* approached significance ($p=.079$), in that interest in nature predicted higher NEP scores, but this result was not statistically significant.

Table 5: Regression Analysis of Demographics and Trip Interests against NEP Scores

Variables	NEP Score β	Significance (p value)
Demographics		
Age	.025	.776
Gender	.009	.894
Residence Type	.000	.997
Highest educational level	-.091	.158
Income	-.084	.224
Relationship status	.070	.295
Children	-.147*	.023*
Nominal GDP per capita (IMF data)	-.100	.122
Trip Interests		
Sightseeing	.068	.300
History	.072	.296
Art	.200**	.002**
Music	.006	.925
Food & Drink	.142*	.029*
Nature	.114	.079
Biking & Hiking	.095	.140
Shopping	-.037	.565
Markets	-.053	.413
Nightlife	-.006	.934
Meeting Locals	.013	.844
R^2	.074	

Note: **β** refers to the standardized coefficient. *=significant at the $p<.05$ level; **=significant at the $p<.01$ level

4.5 Regression analysis of NEP Subscales

As shown in Table 6, a series of regression analyses were run to assess how well each subscale of the NEP was predicted by demographics (*Gender, Residence Type, Relationship Status, Children, Education)* and trip interests (*Sightseeing, History, Art, Music, Food, Nature, Biking & Hiking, Shopping, Markets, Nightlife, Meeting Locals)*. Findings were as follows:

- The "Limits to Growth" subscale was not predicted by any of the variables.
- The "Anti-Anthropocentrism" subscale was predicted by the variables *Gender* and *Art* (R^2=.027), with females showing more pro-ecocentric attitudes than males (p=.008), and people with higher scores being more interested in art (p=.017).
- The "Fragility of Nature" subscale was predicted by the variable *Art* (R^2=.032), with higher scores being related to a higher interest in art (p=.004).
- The "Anti-Exemptionalism" scale was predicted by the variables *Art, Food* and *Gender* (R^2=.062), with higher scores related to a greater interest in art (p=.009) and food (p=.014) and being a male (p=.046).
- The "Possibility of Eco-crisis" subscale was predicted by the variable *Art* (R^2=.023), with higher scores being related to a higher interest in art (p=0.11).

Table 6: Results of Regression of Demographics and Trip Interests against NEP Subscales

	NEP Subscales				
	Limits to Growth β	**Anti-Anthropocentrism β**	**Fragility of Nature β**	**Anti-Exemptionalism β**	**Possibility of Eco-Crisis β**
Age	-	0.018	-0.100	0.002	-0.052
Gender	-	**0.172****	-0.055	**-0.128***	0.040
Residence Type	-	-0.027	0.088	0.055	0.070
Education	-	-0.097	-0.089	-0.003	0.024
Income	-	-0.039	0.003	-0.058	-0.067
Relationship Status	-	-0.075	0.047	0.015	0.112
Children	-	-0.034	-0.122	-0.028	-0.028
Per Capita GDP of Home Country	-	-0.028	-0.101	-0.1	-0.089
Sightseeing	-	-0.071	0.116	0.021	0.037
History	-	0.049	0.081	0.088	0.017
Art	-	**0.113***	**0.19****	**0.169****	**0.165***
Music	-	0.019	0.036	-0.069	-0.037

	NEP Subscales				
	Limits to Growth β	**Anti-Anthropocentrism β**	**Fragility of Nature β**	**Anti-Exemptionalism β**	**Possibility of Eco-Crisis β**
Food	-	0.095	0.014	**0.158***	0.108
Nature	-	0.156	-0.065	0.085	0.063
Biking & Hiking	-	0.090	0.056	0.043	0.029
Shopping	-	-0.052	-0.025	0.032	0.005
Markets	-	-0.035	0.044	-0.053	-0.044
Nightlife	-	-0.009	0.087	-0.076	0.092
Meeting Locals	-	-0.003	0.013	0.103	-0.029
Adjusted R2	-	0.056	0.032	0.062	0.023

Note: **β** refers to the standardized coefficient. *=significant at the *p*<.05 level; **=significant at the *p*<.01 level

4.6 NEP group comparisons

Finally, respondents were segmented into three groups according to their NEP scores, with the upper 25th percentile in the "high" NEP group, the lower 25th percentile in the "low" NEP group, and the middle 50% in the "medium" NEP group. The cutoff point for the upper 25th percentile was a score of 3.75, while the cutoff point for the lower 25th percentile was a score of 3.2. As seen in Table 7, due to the way scores were distributed there was not a clear 25% cutoff point, which is why the lower quartile actually contains 25.75% of respondents.

Table 7: Frequencies of NEP Scores in the Study Population

Scores	Frequency	Percent	Cumulative Percent
2.27	1	.4	.4
2.33	1	.4	.7
2.53	2	.7	1.5
2.67	1	.4	1.9
2.71	1	.4	2.2
2.73	1	.4	2.6
2.80	5	1.9	4.5
2.87	5	1.9	6.3
2.93	6	2.2	8.6
3.00	8	3.0	11.6
3.07	14	5.2	16.8
3.13	11	4.1	20.9
3.14	3	1.1	22.0
3.20	10	3.7	25.7
3.21	2	.7	26.5
3.27	13	4.9	31.3

Scores	Frequency	Percent	Cumulative Percent
3.33	18	6.7	38.1
3.36	1	.4	38.4
3.40	21	7.8	46.3
3.43	1	.4	46.6
3.47	16	6.0	52.6
3.50	1	.4	53.0
3.53	18	6.7	59.7
3.57	2	.7	60.4
3.60	15	5.6	66.0
3.64	1	.4	66.4
3.67	8	3.0	69.4
3.71	1	.4	69.8
3.73	14	5.2	75.0
3.80	8	3.0	78.0
3.87	10	3.7	81.7
3.93	11	4.1	85.8
4.00	10	3.7	89.6
4.07	9	3.4	92.9
4.13	6	2.2	95.1
4.20	6	2.2	97.4
4.40	1	.4	97.8
4.53	4	1.5	99.3
4.60	1	.4	99.6
4.80	1	.4	100.0
Total	**268**	**100.0**	

Note: colors indicate NEP groups

A series of cross-tabulations ("crosstabs") were run in SPSS to compare low, medium and high NEP groups in terms of demographics and trip interests. As seen in Table 8, crosstabs of all categorical dependent variables revealed that only four variables were significantly different between groups: *Children* (p=.041), and interest in *Art* (p=.001), *Music* (p=.023), and *Nature* (p=.023). Interest in *Biking and Hiking* approached significance (p=.073), as did interest in *Meeting Locals* (p=.097), with the high NEP group being more likely to be interested in those topics. None of the other variables (*Age, Gender, Relationship Status, Residence Type,* or interest in *Sightseeing, History, Food & Drink,* or *Nightlife*) were significant.

Table 8: Demographics and Trip Interests by NEP Group

	High NEP group (upper 25th percentile)		**Medium NEP group (middle 50%)**		**Low NEP group (lower 25th percentile)**		
	Count	%	Count	%	Count	%	Overall significance (crosstabs)
Total	67	100%	132	100%	69	100%	

	High NEP group (upper 25th percentile)		Medium NEP group (middle 50%)		Low NEP group (lower 25th percentile)		
Demographics							
Gender							**.480**
Female	35	52.24%	71	53.79%	31	44.93%	
Male	32	47.76%	61	46.21%	38	55.07%	
Relationship Status							**.343**
Married/in a relationship	45	67.16%	98	74.24%	45	65.22%	
Single/ widowed	22	32.84%	34	25.76%	24	34.78%	
Children							**.041***
Yes	9	13.64%	38	30.16%	16	24.24%	
No	57	86.36%	88	69.84%	50	75.76%	
Education							**.953**
University	47	70.15%	94	71.76%	50	72.46%	
No University	20	29.85%	37	28.24%	19	27.54%	
Residency type							**.340**
City	57	85.07%	106	80.30%	51	75.00%	
Countryside	10	14.93%	26	19.70%	17	25.00%	
Income groups							**.181**
0-20,000	33	51.56%	66	51.97%	25	36.76%	
80,001-100,000	2	3.13%	5	3.94%	2	2.94%	
40,001-60,000	5	7.81%	15	11.81%	11	16.18%	
20,001-40,000	20	31.25%	27	21.26%	26	38.24%	
60,001-80,000	2	3.13%	9	7.09%	2	2.94%	
100,000 or more	2	3.13%	5	3.94%	2	2.94%	
Trip Interests							
Sightseeing	59	88.06%	118	89.39%	57	82.61%	**.381**
History	53	79.10%	89	67.42%	45	65.22%	**.150**
Art**	**37**	**55.22%**	**41**	**31.06%**	**20**	**28.99%**	**.001****
Music*	**27**	**40.30%**	**29**	**21.97%**	**18**	**26.09%**	**.023***
Food & Drink	55	82.09%	104	78.79%	52	75.36%	**.632**
Nature*	**37**	**55.22%**	**59**	**44.70%**	**22**	**31.88%**	**.023***
Biking & Hiking	9	13.43%	10	7.58%	2	2.90%	**.073**
Shopping	15	22.39%	32	24.24%	20	28.99%	**.648**
Markets	12	17.91%	31	23.48%	8	11.59%	**.121**

	High NEP group (upper 25th percentile)		Medium NEP group (middle 50%)		Low NEP group (lower 25th percentile)		
Nightlife	16	23.88%	39	29.55%	12	17.39%	**.163**
Meeting Locals	29	43.28%	37	28.03%	23	33.33%	**.097**

Note: *=significant at the level of $p<.05$; **=significant at the $p<.01$ level

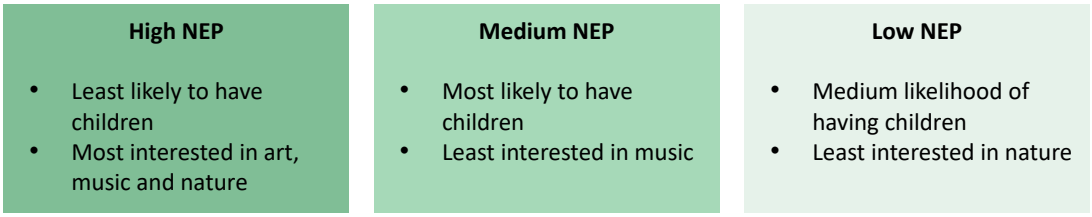


Figure 11: Characteristics of NEP Groups

A closer look at the residuals produced by the crosstabs shows between which groups the significant differences lie. Specifically, adjusted residuals that are greater than 1.96 or less than -1.96 indicate significant differences between groups (Durrheim & Tredoux, 2004) (see Appendix B to see actual data). The significant characteristics of the three NEP groups are summarized in Figure 11. In the case of the variable *Children*, significantly more people in the High NEP group had no children compared to the other groups, and significantly more people in the Middle NEP group did have children (see Figure 12). Looking at the trip interest *Art*, significantly more people in the High NEP group were interested in art on their trip compared to the other groups (See Figure 13). Similarly, significantly more people in the High NEP group were interested in *Music* and *Nature* compared to the other groups (See Figure 14 and Figure 15, respectively). As expected, the Low NEP group was significantly less interested in *Nature* compared to the other groups. The Medium NEP group was significantly less interested in *Music* compared to the other two groups. There was a tendency for High NEP respondents to be more interested in *Biking and Hiking* and in *Meeting Locals* compared to other groups, but this finding was not statistically significant.

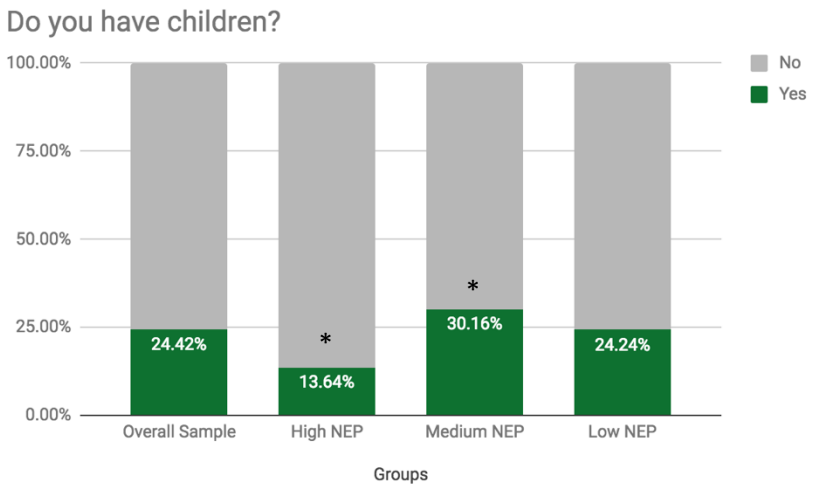


Figure 12: Differences between NEP groups on responses to the question "do you have children?"

Note: *=statistically significant (p<.05)

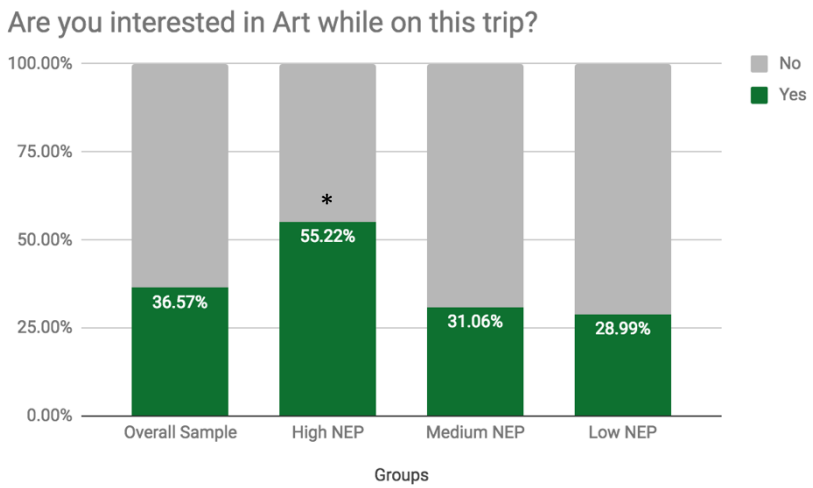


Figure 13: Differences between NEP groups on responses to the question "Are you interested in art on this trip?"

Note: *=statistically significant (p<.05)

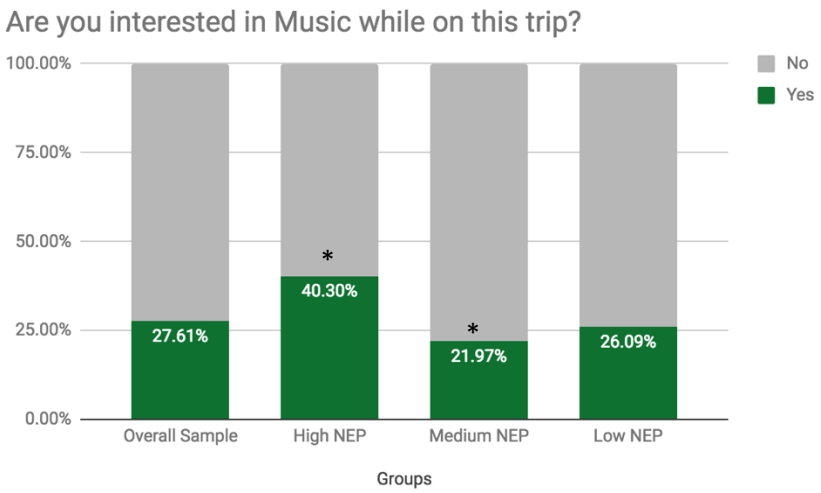


Figure 14: Differences between NEP groups on responses to the question "Are you interested in music on this trip?"

*=statistically significant (p<.05)

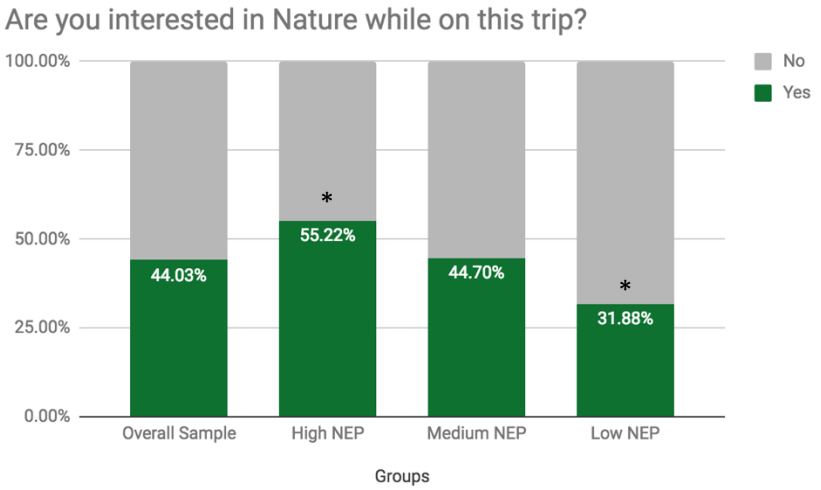


Figure 15: Differences between NEP groups on responses to the question "Are you interested in nature on this trip?"

*=statistically significant (p<.05)

In order to compare groups on continuous dependent variables, several Kruskal-Wallis tests were run in SPSS. These tests showed that there were no statistically significant differences between groups on any of the continuous dependent variables (nominal GDP per capita of home country, and age).

5 Discussion

This chapter will include a discussion of the research questions **(5.1 & 5.2)**, an overview of the study's limitations **(5.3)**, and a summary of potential future research directions **(5.4)**.

5.1 Environmental Attitudes of Urban Tourists

To address SRQ1, the first step was to assess the overall environmental attitudes of the study population of urban tourists. In general, it was found that the urban tourists surveyed tended towards having an ecocentric worldview, with an average score of 3.5 on the NEP scale. The NEP scale ranges from 1 to 5, with scores below 3 indicating anthropocentric attitudes, a score of 3 indicating a neutral attitude, and scores above 3 indicating ecocentric attitudes. The relatively high average NEP score in the present study confirms what was found by Kim et al. (2006), one of the few other urban tourism segmentation studies, conducted in the Brazilian city of Goias. Therefore, it could be concluded that urban tourists in general care about the environment to some degree.

Despite their apparent concern for the environment, the tourists in this study also displayed a certain optimism that humans can solve environmental problems, as shown by their low scores on questions 4, 6 and 14 of the NEP scale. These three questions are as follows: "*Human cleverness will insure that we do NOT make the earth unlivable*" (Question 4[1]); *"The earth has plenty of natural resources if we just learn how to develop them"* (Question 6); and *"Humans will eventually learn enough about how nature works to be able to control it"* (Question 14). As can be seen, all three of these questions relate to the degree to which humans will be able to overcome environmental challenges. It is important to note that these are reverse-coded questions, meaning that the score given by the respondents on these questions was reversed: e.g. a 5 would become a 1, a 4 would become a 2, etc. Therefore, a high rating provided on these questions translates to a low score when calculating the overall NEP score. The seeming optimism about the future represented by responses to these three questions was also found by Kim et al. (2006). Those authors surmised that this could reflect a "future-oriented optimistic evaluation of human endeavor in relation to nature, which may not be necessarily translated into anti-

[1] Note that the original wording of this question was changed from "ingenuity" to "cleverness" to make it more understandable to non-native English speakers.

environmental view" (Kim et al., 2006, p.963). Indeed, it could be that optimism towards humanity's ability to handle resource shortages and environmental problems is a lesser understood dimension of the NEP that is not incompatible with having an ecocentric worldview. In other words, rather than being a block to environmentalism, optimism about the future could in fact enable environmental behavior. This is supported by studies that have found that people tend to give up on environmentalism when they lose hope in a solution, unless that hope is a result of denial (Ojala, 2012). This is an issue which requires further study.

5.2 Demographics and Trip Interests of Pro-Environmental Urban Tourists

To address SQ2 and SQ3, and assess how the demographics and trip interests of tourists vary depending on their environmental attitudes, tourists were segmented into three groups based on their NEP scores. High, medium and low NEP groups were significantly different from each other on three of the measured independent variables: *children*, *art, music* and *nature.* In particular, respondents with high NEP scores (defined as those in the top 25th percentile) were significantly less likely to have children, and were significantly more interested in art, music and nature. They also displayed a non-significant tendency to be more interested in biking and hiking and meeting locals. The regression analysis confirmed that a higher NEP score was predicted by having no children and being interested in art. The regression also picked up on interest in food and drink as a significant predictor of NEP scores, with higher scores being related to a higher interest in this topic. It is not clear why the regression picked up on food and drink as a significant predictor of NEP scores, while the group comparisons did not find any significant differences in this variable. However, the higher interest in food and drink by tourists with a higher NEP would make sense given that Nickerson et al. (2016) found that "strong geotravelers" (i.e. sustainability-minded tourists) tended to spend significantly more than "minimal" and "moderate" geotravelers on food and groceries while traveling.

The fact that tourists in the high NEP group were less likely to have children was unexpected. It was thought that parenthood would bring with it a higher sensitivity to external factors that could harm a child, such as pollution. Indeed, it is not uncommon for green businesses to target young parents, whom they know are more conscious of the health effects of toxins in air, water, food and other consumer goods. However, a previous

study by Juvan & Dolnicar (2014) also found that factors such as family responsibilities can be an obstacle to pro-environmental behavior on holiday. In addition, other studies found that people with children have less pro-environmental attitudes have and behaviors than those without, due to shifting priorities (Thomas et al., 2018). Cvelbar et al. (2017) found that families were less likely to reuse their towels at hotels compared to non-families, though it is possible that this could depend highly on the age of the children. A final explanation for the finding is that more pro-environmental people are less likely to have children because they do not believe it to be an environmentally-friendly life choice. Indeed, some environmental scientists have argued that having children is one of the least environmentally-friendly things someone can do in terms of cumulative greenhouse gas emissions over generations (Wynes & Nicholas, 2017), though this argument is highly disputed for obvious reasons. Regardless, the present study confirms that having children is related to people being less environmentally conscious. It is also possible that this finding is unique to the study sample, and therefore it should be explored further in future studies.

Regarding trip interests, a higher interest in nature by the high NEP group was expected, but it was surprising that art and music were of significantly more interest to the high NEP group. It could be guessed that this finding might be related to education, however no significant differences in educational level was found between NEP groups. Nevertheless, comparisons of educational groups (i.e. those with and without a university education) showed that indeed respondents with at least a university education tended to be more interested in art than those without a university education, though this effect was not significant. More educated respondents were also less interested in shopping compared to less educated respondents. It does therefore appear that education influences trip interests, which in turn are related to pro-environmental attitudes. However, it could also be that interest in art and music are related to a different variable that influences pro-environmental views, such as worldliness or anti-consumerism, which would have to be confirmed with further research.

As hypothesized, this study confirmed the finding that more environmentally conscious tourists were less interested in topics such as shopping and more interested in nature and biking and hiking, although these findings were not statistically significant. Dolnicar & Leisch (2008) also found that pro-environmental tourists were less interested in luxury and entertainment and more interested in nature and sport. This is a fairly intuitive finding, as ecocentrism is a trait that is generally connected to a love of nature and the

outdoors, and an aversion to consumerism. As Hirsh & Dolderman (2007) put it, "Consumerism and Environmentalism are often viewed as mutually opposing constructs. While the former emphasizes the accumulation and consumption of material resources, the latter advocates resource conservation and long-term sustainability" (p. 1583).

Overall, no gender differences were found between NEP groups, contrary to other studies that have found females to have stronger pro-environmental attitudes (Han et al., 2011; Higham et al., 2011; Milfont & Markowitz, 2016; Plavsic, 2013; Zelezny, Chua & Aldrich, 2000). However, running additional regressions looking at subscales of the NEP found that there was a significant relationship between the "anti-anthropocentrism" subscale and gender. Specifically, women's scores on this scale indicated that they had less anthropocentric (i.e. more ecocentric) worldviews compared to men, and that this difference was significant. The finding of a gender difference on this subscale mirrors the findings of the NEP segmentation studies conducted by Luo & Deng (2008) and Uysal & Jurowski (1994). Other studies have also found that women tend to have a more nurturing attitude towards nature, whereas men are more focused on the mastery of nature, and that this difference is largely due to how each gender is socialized (Plavsic, 2013; Zelezny, Chua & Aldrich, 2000). As Zelezny, Chua & Aldrich (2000) write: "Females across cultures are socialized to be more expressive, to have a stronger 'ethic of care,' and to be more interdependent, compassionate, nurturing, cooperative and helpful in caregiving roles" (p. 3). This nurturing tendency could explain the greater ecocentrism of female urban tourists. Another interesting perspective comes from the literature on so-called "eco-feminism," which proposes that there is a link between female social roles and environmental attitudes:

> "Ecofeminism proposes that women are more likely to care for the environment because a) they are socialized into nurturing roles, making them more sympathetic to environmental woes, and b) women relate to the environment on the same level, as they are both being dominated by patriarchal systems" (Plavsic, 2013, p. 8).

Both ideas could help explain the current finding that females are more ecocentric than males.

On the other hand, men had significantly *higher* scores than women on the "Anti-Exemptionalism" scale, indicating that men were less likely to believe humans are "exempt from the constraints of nature" (Dunlap et al., 2000, p.432). The questions included in this scale are: "*Human cleverness will insure that we do NOT make the earth unlivable*"

(Question 4), "*Despite our special abilities humans are still subject to the laws of nature*" (Question 9), and "*Humans will eventually learn enough about how nature works to be able to control it*" (Question 14). It is very interesting that two of these questions (4 and 14) are among those questions that had the lowest overall scores in the study population, as discussed above. There are two possible explanations. First, it could be that these low overall scores can partially be accounted for by the responses of women (which would explain which men have higher anti-exemptionalism scores). Indeed, a closer look at the data shows that on average, women were more likely to agree with these statements than men, particularly question 4. This would suggest that women are inherently more optimistic about humans' ability to solve environmental problems. This is somewhat surprising, given other studies that have found that women are more skeptical about technological solutions to environmental problems than men (Wehrmeyer & McNeil, 2000). Perhaps the optimism of women captured in this study is not related to a belief in technology, but rather in humans' innate ability to overcome problems, for example with cooperation and creativity. Second, it could be that there is a flaw in the way that those two questions are phrased. As Kim et al. (2006) write when referring to questions 4, 9 and 14: "the wording of those three items may not be clearly structured in such a way to represent anti-environmental orientation" (p. 963). The latter possibility would suggest that the NEP score is due a third revision, which would make the wording clearer.

5.3 Study Limitations

As mentioned above, a major limitation of the study is that the NEP scale, while currently being the best validated environmental attitudes scale available, may still not be as perfect measure of environmental attitudes as was originally hoped. Particularly questions 4, 9 and 14 might need rewording, given that they tend to produce anomalous results. Furthermore, this study also provided some evidence that the NEP scale may not be ideal for non-native English speakers. A number of respondents asked for clarification of vocabulary used in the survey, suggesting that they may not have fully understood everything. This is a crucial issue in tourism research, when surveys are conducted with people from many parts of the world. If a valid translation of the NEP scale existed in every language, the survey could be administered digitally, and respondents could choose their language. However, not only are these translations currently not available, but such an approach would also require a great deal of technology and human resources. A less

resource-intensive approach would be to revise the NEP scale to contain more simple language that can be understood by people of varying levels of English proficiency.

A further limitation of the study is that it did not measure all possible antecedents of environmental attitudes. One major issue is that a validated rating scale that measures all of the antecedents of environmental attitudes is lacking. The current study suggests that it would be useful to have a more comprehensive scale, in terms of understanding what drives and blocks environmental attitudes. Therefore, developing a more comprehensive rating scale for the antecedents of environmental attitudes and behaviors is something that researchers should continue to pursue. However, such a scale would also have to be designed to be concise enough to be able to administer it in time-restricted settings, such as with tourists.

The present study did not find demographic differences between NEP groups, unlike previous studies (Dolnicar, 2004; Dolnicar & Leisch, 2008; Dunlap et al., 2000; Franzen & Vogl, 2013; Han et al., 2011; Higham et al., 2011; Milfont & Markowitz, 2016; Zografos & Allcroft, 2007). This discrepancy may be because some demographics such as nationality and age were not sufficiently well-distributed in the present study, despite efforts made to collect data at different locations, days of the week and times of day. It should be noted however that there is a lack of consensus on this issue, as other green tourism segmentation studies have also found a weak or no relationship between environmental attitudes and demographics (Bergin-Seers & Mair, 2009; Kim et al., 2006; Luo & Deng, 2008; Formica & Uysal, 2002). It is unclear which aspect of methodology or study sample may account for this difference in findings. However, in the current study a majority of respondents came from a small number of countries (Germany, the UK and the Netherlands), making it almost impossible to draw any conclusions about the relationship between GDP of home country and environmental attitudes. This nationality imbalance may also be because the survey was conducted in English, as there were not resources available to reliably translate the NEP scale into multiple languages. Furthermore, given that almost three quarters of the respondents were between the ages of 16-35, significant age and income differences were also hard to find. In future, it would be best to take measures to ensure that the sample is more representative in terms of age groups and nationalities, and that the scale be made more understandable to non-native English speakers.

Finally, the present study did not measure actual environmental behaviors. It should be noted that many researchers found that peoples' attitudes and actual behaviors

do not always align, which has been called the “attitude-behavior gap.” Therefore, while tourists in this study displayed pro-environmental attitudes, this does not necessarily mean they acted in an eco-friendly way on holiday. Indeed, research by Juvan & Dolnicar (2014) found that people with pro-environmental attitudes often do not exhibit eco-friendly behaviors on holiday because they see the vacation context as a “special treat” or because they are attending to other priorities such as family responsibilities (Juvan & Dolnicar, 2014). Other studies have found that tourists and consumers often feel that it is not their responsibility to behave in a sustainable manner on holiday (Lopez-Sanchez & Pulido-Fernandez, 2016) or think that their travel behaviors are not a priority when it comes to acting in an environmentally friendly way (McKercher & Prideux, 2011). In a meta-analysis of 53 studies, Joshi & Rahman (2016) found that the three most common reasons for the attitude-behavior gap were “high price, low availability and lack of consumer trust in green products” (Joshi & Rahman, 2016, p. 139). It is therefore clear that there are a number of internal and external factors that could potentially hold tourists back from translating their pro-environmental attitudes to action. However, as discussed in the Conclusions & Recommendations chapter, there are a number of actions that businesses and policymakers could take to turn those attitudes into action.

To further address the potential attitude-behavior gap issue, an ideal study would look at actual behavior as well as attitudes, yet given that such studies are resource-intensive, studying antecedents to behavior, such as attitudes, is still currently the most cost-effective approach. Today, businesses with sufficient resources can engage in “data mining,” meaning real-time information collected from real online customers, such as their demographics and spending habits. This tactic is becoming an increasingly used way to measure real consumer behavior. Data mining of online shoppers is already a widespread practice, and this information is used by marketers to better design their advertising, products and services. However, collecting and analyzing such data is an expensive and time-consuming task that lies beyond the resources of many small tourism businesses. It also carries significant ethical issues.

5.4 Future Research Directions

The present study opened several avenues that researchers could explore to help build upon our current knowledge of urban green tourists. Questions that could be examined more fully include:

1. Do tourists with pro-environmental attitudes actually engage in more pro-environmental behaviors?
2. What are the main obstacles that urban tourists face in translating their pro-environmental attitudes into action?
3. Is optimism about the future an important moderator of pro-environmental attitudes and behaviors?
4. Why do people with children have lower pro-environmental attitudes?
5. Are there other factors, such as worldliness or anti-consumerism, behind pro-environmental urban tourists' greater interest in art and music?
6. Is a higher degree of ecocentrism among women a result of socialization, of "eco-feminism" or some other factor?

Future green urban tourism studies could also look at other factors that have been shown to influence pro-environmental attitudes such as:

- hope (Sachdeva, 2015);
- personality (Hirsch & Dolderman, 2007);
- pride and guilt (Bissing-Olson et al., 2016);
- perceived consumer effectiveness (Ellen et al., 1991; Jaiswal & Kant, 2018);
- morals & values (Joshi & Rahman, 2016; Steg & Vlek, 2009);
- social norms (Bissing-Olson et al., 2016; Juvan & Dolnicar, 2014; Sachdeva, 2015; Steg & Vlek, 2009; Terrier & Marfaing, 2015);
- economic costs (Juvan & Dolnicar, 2014; Steg & Vlek, 2009);
- habits (Joshi & Rahman, 2016; Steg & Vlek, 2009);
- trust or skepticism (Juvan & Dolnicar, 2014);
- availability of options and product quality (Joshi & Rahman, 2016);
- environmental concern (Jaiswal & Kant, 2018; Joshi & Rahman, 2016; Steg & Vlek, 2009);
- environmental knowledge (Han et al., 2015; Jaiswal & Kant, 2018; Joshi & Rahman, 2016; Kollmuss & Agyeman, 2002);
- and sense of responsibility for environmental problems (Alcock, 2012).

It must be said that there is a need for a validated rating scale in the tourism context that would measure some or all of these antecedents. Admittedly, a scale incorporating so many variables would inevitably be long and therefore difficult to

administer in a tourism setting, as tourists usually are not eager to spend large amounts of time on vacation filling out surveys. Table 9 proposes an example of questions that could be used to measure a number of antecedents. However, such a scale would have to be refined and validated.

Table 9: Proposed Questions for Comprehensive Green Behavior Antecedent Scale

Driver/Obstacle	Statement
Behavior	I try to be environmentally friendly in most things that I do (adapted from Alcock, 2012)
Context	I behave in a less environmentally friendly way when on holiday than at home (based on Juvan & Dolnicar, 2014)
Attitude	Humans are severely abusing the environment (Dunlap, 2000)
Hope	I believe humanity will find a solution to climate change and other environmental problems (self-elaborated)
Morals	I feel a moral obligation to behave in an environmentally friendly way (self-elaborated)
Guilt	Not behaving in an environmentally friendly way makes me feel guilty (self-elaborated)
Responsibility	It is the responsibility of scientists, governments and businesses to find solutions to environmental problems (adapted from Alcock, 2012)
Perceived Consumer Effectiveness	There is not much that any one individual can do about the environment (adapted from Ellen et al., 1991)
Priorities / concern	When on holiday, the environment is a low priority for me compared with a lot of other factors (adapted from Alcock, 2012)
Perceived inconvenience / difficulty	It takes too much time and effort to do things that are environmentally friendly on holiday (adapted from Alcock, 2012)

Driver/Obstacle	Statement
Social norms	I am more environmentally conscious on holiday than most people I know (adapted from Bissing-Olson et al., 2016, based on Juvan & Dolnicar, 2014)
Price	I can't afford to be environmentally friendly on holiday (based on Juvan & Dolnicar, 2014)
Trust / skepticism	I don't trust some businesses are as green as they claim to be (based on Juvan & Dolnicar, 2014)
Information/Knowledge	I have enough information to know how to be more environmentally friendly on this trip (self-elaborated)
Infrastructure	This city's infrastructure made it easy for me to be environmentally friendly on this trip (self-elaborated)
Possibilities	I know where to find eco-friendly alternatives on this trip (self-elaborated)
Knowledge	The tourism industry causes pollution, waste, climate change, and exhaustion of natural resources (adapted from Han et al., 2015)

6 Conclusions & Recommendations

Despite the above discussed limitations, the present study gave evidence that urban tourists are pro-environmental in their attitudes, which leads to the conclusion that steps should be taken to transform these attitudes into green behaviors. As Lorenzoni et al. (2007) write:

> "Information and knowledge about climate change, and even the motivation to act, are important for engagement but not sufficient. There is a need for supportive institutions and infrastructure (e.g., affordable and efficient public transport) to enable action at an individual level" (p. 455).

This chapter will explore strategies that businesses including *Prague Green City Guide* could use to target pro-environmental tourists and encourage more green behavior among them **(6.1 & 6.2),** and policy tools that could be used to help enable pro-environmental behaviors by urban tourists **(6.3),** followed by concluding statements **(6.4)**.

6.1 Recommendations for Businesses

The present study provides some valuable information for businesses operating in the realm of urban green tourism. First, it is clear that urban tourists, whether or not they self-identify as "green," do tend to be concerned about the environment. Urban tourism businesses would therefore be wise to be ecologically-conscious in their product offerings. Second, almost all tourists in this study shared an interest in topics such as sightseeing, history and food and drink, regardless of their environmental attitudes. Pro-environmental tourists were particularly interested in art, music, nature and food/drink. This highlights the importance of incorporating green tourism principles into the core aspects of urban tourism, which often center around sightseeing, visiting cultural attractions and dining.

Businesses could take multiple steps to encourage tourists to transform their pro-environmental attitudes into action. Visible approaches include green advertising campaigns, awareness-raising efforts, eco-labeling and green branding (Hall et al., 2015). The benefit of such visible approaches is that they can attract high value green customers. The downside is that they could potentially be interpreted as greenwashing or could drive away customers who do not self-identify as green. Furthermore, they may not be effective. For example, Dolnicar et al. (2017) found that appealing to hotel guests' environmental values through the use of visible messaging in hotel rooms did not lead to an increase in

towel reuse. Nevertheless, visible strategies can be effective, especially if they are carried out with moderation, authenticity and trusted third parties.

Other more subtle strategies could include:

- **Greening products and operations.** Improving the environmental impact of the supply chain and operations does not have to be blatantly communicated to customers as “green” initiatives. This sends the message that being green is simply the norm rather than something extra. Examples of this could include using biodegradable packaging, ceasing to offer guests plastic straws, installing water and energy saving appliances and using low-cost methods to insulate windows. The benefit of such an approach is that it avoids alienating less green customers while simultaneously cutting both environmental impacts and costs. At the same time, eco-conscious customers are likely to notice and appreciate the efforts.

- **Incentivizing green behavior.** It is known that people who are environmentally conscious at home may not behave in eco-friendly ways when on holiday, largely because tourists are not economically incentivized to save resources when on holiday (Dolnicar, 2010; Juvan & Dolnicar, 2014). Businesses could change this by rewarding their customers for eco-friendly behaviors. For example, a coffee shop could give customers a discount for bringing their own reusable cup, or a hotel could reward guests with a voucher for reusing their towels.

- **“Nudging” tourists towards green behavior.** Nudging, a concept first introduced by Thaler and Sunstein (2009), is “to deliberately intervene in a given choice architecture, without however changing monetary incentives or the option set itself” (Schubert, 2017, p. 330). In other words, nudging is "carefully guiding people's behavior in [a] desirable direction without using either carrot or whip" (Mont et al., 2014, p. 7). Nudging is an idea that has grown from behavioral psychology research, which has uncovered how humans do not always behave as “homo economicus” would, in rational and linear ways, but rather are highly influenced by contextual cues. Examples of green nudges that have been trialed around the world include not offering plastic bags at grocery stores unless customers request them and putting a note in hotel rooms informing guests of the percentage of fellow guests who reuse their towels (Oullier & Sauneron, 2011; see

Figure 16). The latter approach is effective because it taps into the social norms of guests.

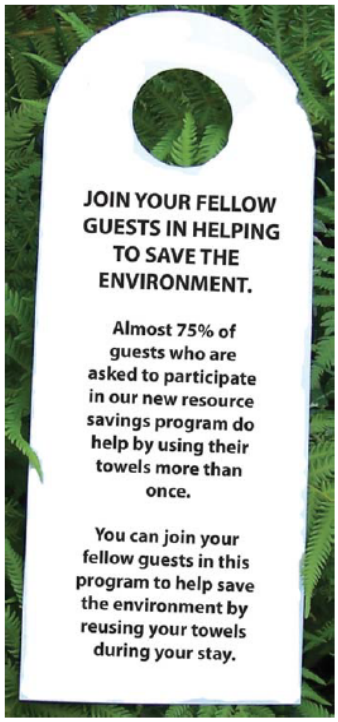


Figure 16: Example of a "green nudge" in a hotel setting (Oullier-Sauneron, 2011, p. 5)

- **Employing "green defaults."** A "green default" is a type of nudge that can be defined as a pro-environmental "alternative that is automatically selected when an agent makes no active choice" (Brown et al., 2013, p. 129). Green defaults have been shown to induce pro-environmental behaviors even in the absence of consumers' conscious awareness of the impact of their decision. Examples of this include saving paper due to setting printer defaults to double-sided (Egebark & Egstrom, 2016) and saving energy by reducing thermostat defaults by 1 degree Celsius (Brown et al., 2013). Generally, "green defaults" work best when users do not have a strong preference for one choice over another, and when the nudges are not too extreme. Such green defaults have been described as "low hanging fruit" because they are relatively easy to implement, have potentially large impacts, and come at no additional cost (in many cases even saving costs). Green hotels and other tourism providers might consider making use of green defaults in order to both save resources and promote greener behavior among tourists.

- **Making green products affordable.** Green tourism businesses should ensure that green products and services are not targeted only at high income groups. While there is some indication that tourists are willing to pay slightly more for green products (Nickerson et al., 2016; Wehrli et al., 2001), it is also known that the perceived high price of green products is a major deterrent for environmental purchasing behavior (Joshi & Rahman, 2016). The current study also found that tourists were environmentally conscious regardless of income. Therefore, businesses should avoid assuming that their eco-conscious products should immediately come at a premium price. An example of this would be restaurants offering free tap water to customers instead of serving water in plastic bottles.

- **Making it easier for families to be green.** Presumably people become less environmentally conscious when they have children because they are overwhelmed by other priorities and costs. Businesses should think of ways of making green tourism more convenient and affordable for families. In order to do this, it would be necessary for businesses to do more market research with their customers to see which obstacles lie in the way of being green. Are there eco-friendly transport, accommodation and dining options for families? If not, this could be potentially valuable market niche. Green products oriented at families should be accompanied by informational campaigns to inform customers about why it is especially important for parents to care about the environment, including the present and future health of their children.

- **Being environmentally *and* culturally conscious.** Urban tourism businesses should keep in mind that pro-environmental tourists, as well as being interested in nature and outdoor activities, are also likely to have an interest in art, music and food. They are also *less* likely to be interested in shopping. Thus, any green tourism businesses developing products such as tours and guidebooks, as well as green hospitality providers wanting to design appropriate activities for their customers, should design their products accordingly. For example, green tours and guidebooks such as *Prague Green City Guide* should be sure to also include information about art, even though this may not intuitively be considered a "green" topic. Topics such as food and biking and hiking should be given precedence over topics such as

shopping. And products should be artistically and attractively designed and packaged, to appeal to modern and culturally-conscious customers.

6.2 Recommendations for *Prague Green City Guide*

In addition to the strategies outlined in section 6.1, there are several other steps *Prague Green City Guide* could take to better reach potential customers. The present study found that people of all age-groups had a similar level of environmental attitudes. Therefore, for *Prague Green City Guide* in particular, which currently appeals mostly to a younger audience, this study suggests that potentially there is a segment of pro-environmental urban tourists of older age-groups who are not being addressed by the guidebook's current online marketing strategy. The marketing strategy could be altered, perhaps using more traditional forms of print media and event marketing to reach various age-groups and nationalities.

Regarding future editions of the book, as mentioned above, it would be advisable to include more information about art and culture in future editions, and less about shopping. Future editions of the book should of course continue to cover topics such as biking and hiking, nature excursions and eco-friendly food and drink options. As seen in the contents page in Figure 17, the current edition of the book has virtually no information about art and culture, and a large chapter dedicated to shopping, so this balance should be corrected. Interestingly, an analysis of *Prague Green City Guide's* social media showed that the most popular post on Instagram was related to art (see Figure 18), which supports the findings of the present study.

In general, *Prague Green City Guide* could do more to collaborate with other stakeholders in the green tourism ecosystem. As Gibson et al. (2003) write, "Urban green tourism, or ecotourism in the city, is an important vision for government, industry, communities and individuals that holds a wealth of potential for all involved (p. 327). As an early-mover in the field of urban green tourism in Prague, *Prague Green City Guide* could consider offering its resources to local tourism planners and encourage other local green businesses to go green. Raising awareness that urban tourists do indeed care about the environment but require adequate options and infrastructure to turn those attitudes into behavior, should be a priority. Indeed, greater involvement of all players could help to synergistically improve green tourism in Prague.

CONTENTS

Figure 17: Contents page of *Prague Green City Guide*, Edition 1

Figure 18: *Prague Green City Guide's* most popular Instagram post in 2017/18

6.3 Recommendations for Policymakers

Understanding the attitudes of green tourists can also help policymakers to enable tourists to transform their attitudes into action. In cities, policy changes regarding tourism would be undertaken by the city government, with the support of the local Destination Marketing Organization (DMO) and Convention and Visitor Bureau. Any effective policy implementation would have to be a coordinated effort between sectors, "including taxation, transportation, housing, social development, environmental conservation and protection and resource management" (Dodds & Butler, 2009, p.11). Of course, a first step is for local governments to prioritize sustainable tourism, which is not always a given. Dodds & Butler (2009) describe how there are multiple obstacles to city governments implementing sustainable tourism policies (see Figure 19), including power struggles and, notably, a short-term focus on profit. However, understanding that the majority of urban tourists care about the environment could help motivate cities to start taking action. After all, failing to do so not only puts the city's resources and sustainability at risk, but also its reputation.

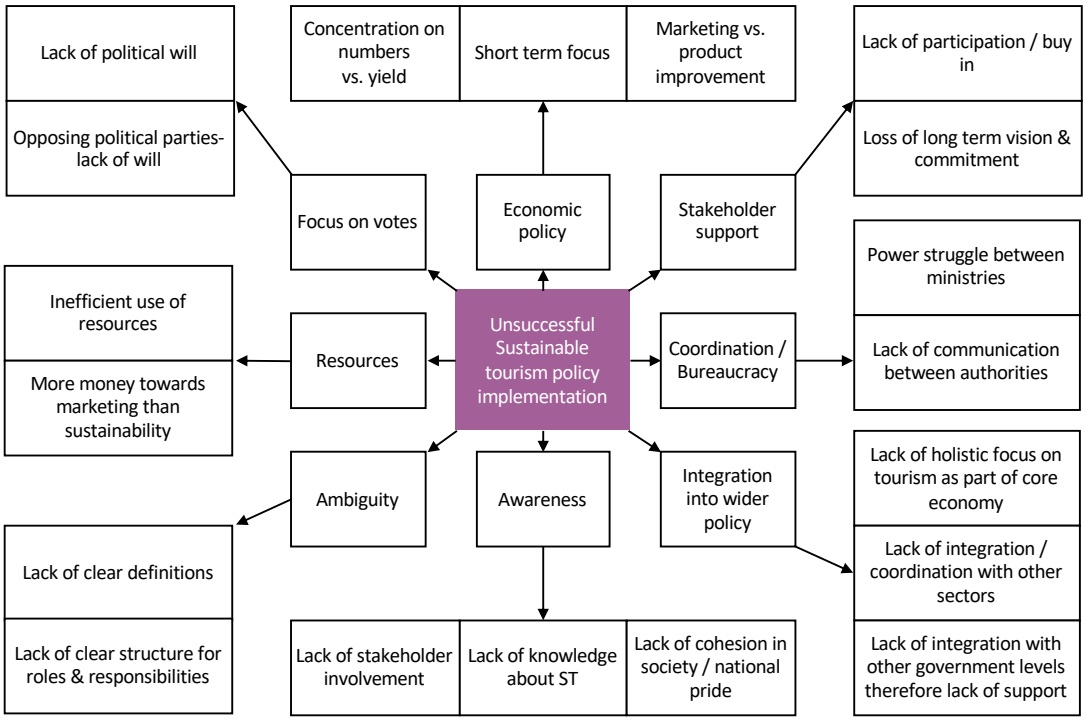


Figure 19: "Barriers to achieving successful sustainable tourism policy" (redrawn from Dodds & Butler, 2009)

Once government commitment to sustainable tourism is present, there are several policy tools available to take action. For example, UNEP's "How to Make Tourism More Sustainable: Guide for Policymakers" (UNEP & UNWTO, 2005) suggests a number of tools that can be used to promote sustainable consumption among tourists. Specifically, these tools can be used to "influence travel choices and visitor flows" and "influence visitor behavior and awareness" (UNEP & UNWTO, 2005, p. 70). They include:

- **Marketing and information services:** online or printed information and campaigns to highlight the green offerings of the city. In the context of the current study, such information could, for example, show tourists how they can save water and energy and reduce waste while engaging in popular tourism activities such as sightseeing, visiting museums and eating at restaurants.

- **Guidelines and codes of conduct:** written rules regarding how visitors should behave in certain places and situations at the destination. For example, signs could be hung up to encourage tourists to recycle, showing them where the nearest bin is located. More strongly enforcing anti-littering rules, in concert with providing adequate waste-management infrastructure, is another example. As Dodds & Butler (2009) point out, guidelines and regulations are sometimes the only way to avoid the "tragedy of the commons," whereby individuals value their own priorities over those of the community when using shared resources.

- **Voluntary certification:** eco-certificates on products and enterprises that help visitors to make more sustainable choices. The Austrian ecolabel ("Umweltzeichen"), issued by the Austrian Ministry of Environment (see Figure 20), is one example of a label that helps consumers to make more eco-conscious choices. The label is accompanied by an online map (www.umweltzeichen.at) where people can search for businesses carrying the label. Governments could cooperate with local artists and influencers to ensure that the label is designed and promoted in a way that it is easy to use, modern and appealing.

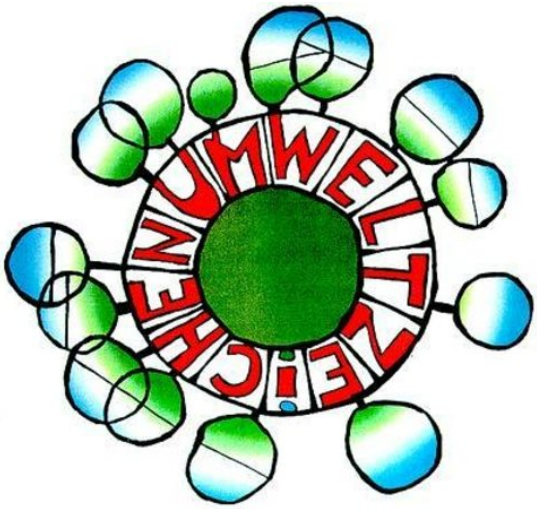


Figure 20: The Austrian Ecolabel ("Umweltzeichen")

- **Economic instruments:** measures to incentivize behavioral change, such as taxes, the proceeds of which can be reinvested into climate mitigation projects.

- **Infrastructure:** the physical public structures in a destination, such as public transport, recycling bins, bike lanes and drinking fountains, that can help enable green behavior.

- **Sustainability indicators:** composite measures of a destination's sustainability that allow sustainability performance to be tracked over time and benchmarked against other destinations (e.g. the ISOST index (Torres-Delgado & Palomeque, 2017)). This can also help tourists to choose destinations that meet their personal sustainability criteria. Figure 21 shows an overview of indicators that could be used to measure sustainable tourism in cities, based on a meta-analysis by Agyeiwaah et al. (2017). These indicators cover economic, social, environmental and cultural issues. In the environmental dimension, key indicators measure "water quality and water management," "solid waste management," and "energy conservation" (Agyeiwaah et al., 2017, p. 31). Other environmental indicators that could be considered include "land use distribution," "environmentally certified tourism establishments," and "environmental criteria applied to tourism planning" (Torres-Delgado & Palomeque, 2017, p. 7).

Key indicators and associated measures.

Dimension	Key indicator	Possible measures
Economic	Employment	Number, type and duration of jobs
		Gender equity
	Business viability	Expenditure
		Arrivals
		Profitability
		Satisfaction, etc.
Social	Quality of Life	Resident empowerment
		Congestion and crowding
		Community attitudes to tourism
		Access to amenities
		Changes in crime rate
Environmental	Water quality and water management	Volume and changes in volume
		Water treatment, etc.
	Solid waste management	Recycling
	Energy conservation	Reduction in energy usage
Cultural	Maintenance of integrity of local communities	Retention of local cultures and traditions
		Maintenance of cultural sites
		Authentic representation of local cultures.

Figure 21: Indicators for sustainable tourism in cities (Agyeiwaah et al., 2017, p. 31)

Not mentioned in the UNEP report (UNEP & UNWTO, 2005) is **nudging,** which can also be used as a policy tool. In this context, nudging is defined as a type of "libertarian paternalism" that guides people towards prosocial behavior without restricting their freedom (Oullier & Sauneron, 2011). As Mont et al. (2014) write, "Nudge is a cost-effective instrument that can enhance other policy tools and that targets behaviours not addressed by other policy instruments because the behaviours are based on automatic, intuitive and non-deliberative thinking" (p.8). Mont et al. (2014) further emphasize that nudging should not replace traditional policy tools but enhance them, allowing policy makers to tackle problems from both the supply and demand side:

> "There is a growing recognition that supply-side policies (directed at production) need to be complemented by demand side strategies that could help individuals make better decisions for themselves and society at large. Therefore, policy makers are becoming increasingly interested in applications of behavioural sciences in different sectors and types of policy making" (Mont et al., 2014, p.9).

Nudging has been examined as a method to help individuals to circumvent their own harmful habits and tendencies by subtly altering their environment. As Oullier & Sauneron (2011) write, "Virtuous behavior often goes against lifestyle and consumer habits

and has to overcome inertia to change" (p.2). In the context of green behavior, it includes "social advertising invoking norms of conduct, 'prompted' (i.e., voluntary) choice, warnings, reminders, and brief cooling-off periods" (Egebark & Egstrom, 2016, p. 331). Tourism policy makers would be well-advised to look more closely at how nudging could be applied to subtly incentivize greener behavior by both tourism businesses and tourists. As noted by Steg & Vlek (2009), in any effort to achieve behavioral change, focus should be put where the biggest impacts are to be had, such as changing purchasing behavior, reducing driving and lowering thermostat settings (p. 309).

Finally, city governments and DMOs should make efforts to collect data about what drives and blocks pro-environmental tourist behavior in their city. Tourist surveys could include the following types of questions:

1. A shortened version of a scale such as the NEP to measure the environmental attitudes of their visitors;
2. Questions about whether the existing city infrastructure enables pro-environmental behavior, such as the presence of recycling bins and drinking fountains;
3. Questions about whether the tourist has enough information to know how to engage in pro-environmental behavior while in that city.

The above are just examples of questions that city statistical offices could use to inform their sustainable tourism efforts. Based on this information, they could better target pro-environmental awareness campaigns and improve green city infrastructure. For example, if it is known that tourists in general possess positive views towards environmental protection, efforts could be focused more on enabling and incentivizing green behavior rather than solely on awareness-raising. This could include providing tourists with concrete practical tips on how to behave in a more environmentally-friendly way when visiting the city. If, on the other hand, it is found that tourists generally are not concerned about the environment, the focus could be placed more on awareness-raising about environmental issues. If such data was made public, it could also help tourism businesses and entrepreneurs to find innovative solutions.

6.4 Concluding Statements

To conclude, the current study was able to shed some new light on the topic of the characteristics of urban green tourists. The finding that pro-environmental urban tourists are likely to have no children and to have a high interest in art, nature, food and music, can be combined with what is already known about green tourists to help urban tourist businesses, tourism planners and even policy makers to design better products, strategies and campaigns (see Figure 22). Specifically, green tourism strategies should appeal to tourists who are culturally-conscious and price-sensitive, and who prefer appreciative rather than consumptive activities. Presumably such tourists are likely to respond best to nudging or subtle green messaging that does not interfere with the enjoyment of their holiday. Targeting such tourists could in turn help to drive more sustainable tourism to cities and improve the profitability of urban green tourism businesses.

Regarding methodology, while the NEP scale was found to be an effective way to segment tourists based on their environmental attitudes, future studies could consider revising and re-validating the scale to improve the clarity of problematic questions and simplify the wording for non-native English speakers. Nevertheless, it is believed that the NEP scale is still the best environmental attitude scale currently available, and therefore it could be used in other urban tourism studies as a way to compare destinations and track changes over time. In addition, researchers with sufficient resources could also attempt to measure certain environmental behaviors via an observational study, to determine whether pro-environmental attitudes are associated with environmental behaviors in an urban tourism context. However, to make such studies of environmental behavior in urban tourism more comparable, it is advised that a validated methodology and/or rating scale be developed that can be applied to the urban tourism context.

Finally, tourism businesses and destination marketers should also balance any green efforts against economic and social impacts in order to respect the triple bottom line principle that is central to both urban green tourism and sustainable tourism as a whole.

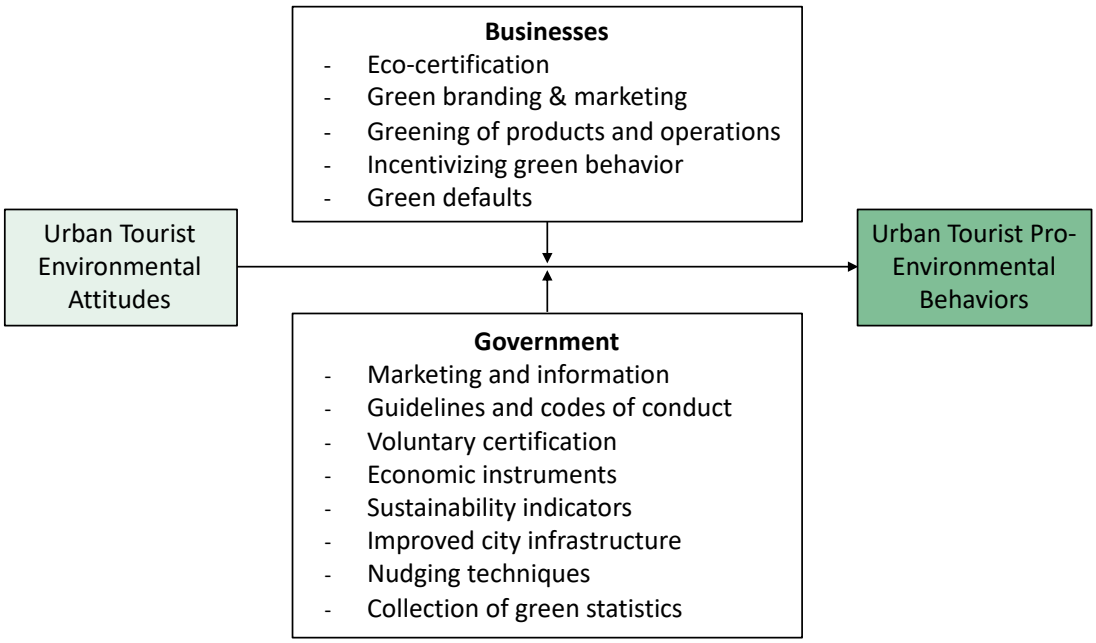


Figure 22: Sample interventions by businesses and governments to increase pro-environmental behavior by urban tourists

Note: self-elaborated diagram; sources: Egebark & Egstrom, 2016; Hall et al., 2015; UNEP & UNWTO, 2005

Appendix A: Survey

1.Please fill in the below information about yourself

Age: ___

Gender
- ❑ Male
- ❑ Female

Home Country:_____

Which best describes where you live?
- ❑ City with >1M inhabitants
- ❑ City with <1M inhabitants
- ❑ Countryside

Highest Educational Level
- ❑ Primary school
- ❑ Secondary education
- ❑ University

Yearly income (netto, after tax)
- ❑ Euro 0-20,000
- ❑ Euro 20,001-40,000
- ❑ Euro 40,001-60,000
- ❑ Euro 60,001-80,000
- ❑ Euro 80,001-100,000
- ❑ Euro 100,000 or more

Marital Status
- ❑ Single
- ❑ In a relationship
- ❑ Married
- ❑ Widowed

Do you have children?
- ❑ Yes

No

2. How much do you agree with the following statements?*

1=Strongly disagree	**2=Disagree**	**3=Neither agree nor disagree**	**4=Agree**	**5=Strongly Agree**

Statements	**1**	**2**	**3**	**4**	**5**
1. We are approaching the limit of the number of people the earth can support.					
2. Humans have the right to modify the natural environment to suit their needs.					
3. When humans interfere with nature it often produces disastrous consequences.					
4. Human cleverness will insure that we do NOT make the earth unlivable.					
5. Humans are severely abusing the environment.					
6. The earth has plenty of natural resources if we just learn how to develop them.					

Statements	1	2	3	4	5
7. Plants and animals have as much right as humans to exist.					
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.					
9. Despite our special abilities humans are still subject to the laws of nature.					
10. The so–called ‘‘ecological crisis’’ facing humankind has been greatly exaggerated.					
11. The earth is like a spaceship with very limited room and resources.					
12. Humans were meant to rule over the rest of nature.					
13. The balance of nature is very delicate and easily upset.					
14. Humans will eventually learn enough about how nature works to be able to control it.					
15. If things continue on their present course, we will soon experience a major ecological catastrophe.					

*Questions taken from the 15-item NEP scale by Dunlap et al., 2000.

1=Strongly disagree	2=Disagree	3=Neither agree nor disagree	4=Agree	5=Strongly Agree

3. Which of the following topics are you interested in on this trip?

- ❑ Sightseeing
- ❑ History
- ❑ Art
- ❑ Music
- ❑ Food & Drink
- ❑ Nature
- ❑ Biking & Hiking
- ❑ Shopping
- ❑ Markets
- ❑ Nightlife
- ❑ Meeting locals

Appendix B: Crosstabs of Significant Variables

Crosstab

			Children		
			0	1	Total
scoregroups	low	Count	50	16	66
		% within scoregroups	75.8%	24.2%	100.0%
		Adjusted Residual	.0	.0	
	medium	Count	88	38	126
		% within scoregroups	69.8%	30.2%	100.0%
		Adjusted Residual	-2.1	2.1	
	high	Count	57	9	66
		% within scoregroups	86.4%	13.6%	100.0%
		Adjusted Residual	2.4	-2.4	
Total		Count	195	63	258
		% within scoregroups	75.6%	24.4%	100.0%

Crosstab

			Art		
			0	1	Total
scoregroups	low	Count	49	20	69
		% within scoregroups	71.0%	29.0%	100.0%
		Adjusted Residual	1.5	-1.5	
	medium	Count	91	41	132
		% within scoregroups	68.9%	31.1%	100.0%
		Adjusted Residual	1.8	-1.8	
	high	Count	30	37	67
		% within scoregroups	44.8%	55.2%	100.0%
		Adjusted Residual	-3.7	3.7	
Total		Count	170	98	268
		% within scoregroups	63.4%	36.6%	100.0%

Crosstab

			Music		
			0	1	Total
scoregroups	low	Count	51	18	69
		% within scoregroups	73.9%	26.1%	100.0%
		Adjusted Residual	.3	-.3	
	medium	Count	103	29	132
		% within scoregroups	78.0%	22.0%	100.0%
		Adjusted Residual	2.0	-2.0	
	high	Count	40	27	67
		% within scoregroups	59.7%	40.3%	100.0%
		Adjusted Residual	-2.7	2.7	
Total		Count	194	74	268
		% within scoregroups	72.4%	27.6%	100.0%

Crosstab

			Nature		
			0	1	Total
scoregroups	low	Count	47	22	69
		% within scoregroups	68.1%	31.9%	100.0%
		Adjusted Residual	2.4	-2.4	
	medium	Count	73	59	132
		% within scoregroups	55.3%	44.7%	100.0%
		Adjusted Residual	-.2	.2	
	high	Count	30	37	67
		% within scoregroups	44.8%	55.2%	100.0%
		Adjusted Residual	-2.1	2.1	
Total		Count	150	118	268
		% within scoregroups	56.0%	44.0%	100.0%

Appendix C: Affidavit

I, Jennifer Day, hereby ensure that:

1. I wrote the present Master thesis myself, "The Characteristics of Pro-Environmental Urban Tourists: A Market Segmentation Study Based on the New Ecological Paradigm", 87 bound pages, that I have only used the given sources and resources and have not been assisted by an external party that is disapproved of.

2. I neither presented this Master thesis at home nor abroad in a format other than the research paper.

3. This Master thesis is the same as the research paper evaluated by the examiner.

_____ _____

Date Signature

References

Agyeiwaah, E., McKercher, B., & Suntikul, W. (2017). Identifying core indicators of sustainable tourism: A path forward?. Tourism Management Perspectives, 24, 26-33. DOI: 10.1016/j.tmp.2017.07.005

Ahvenniemi, H., Huovila, A., Pinto-Seppä, I., & Airaksinen, M. (2017). What are the differences between sustainable and smart cities?. Cities, 60, 234-245. DOI: 10.1016/j.cities.2016.09.009

Alcock, I. (2012). Measuring commitment to environmental sustainability: The development of a valid and reliable measure. Methodological Innovations Online, 7(2), 13-26. Retrieved from http://journals.sagepub.com/doi/abs/10.4256/mio.2012.008

Arcadis. (2016). *Sustainable Cities Index.* Amsterdam, the Netherlands: Arcadis. Retrieved from https://www.arcadis.com/en/global/our-perspectives/sustainable-cities-index-2016/

Bergin-Seers, S., & Mair, J. (2009). Emerging green tourists in Australia: Their behaviours and attitudes. Tourism And Hospitality Research, 9(2), 109-119. DOI: 10.1057/thr.2009.5

Bissing-Olson, M. J., Fielding, K. S., & Iyer, A. (2016). Experiences of pride, not guilt, predict pro-environmental behavior when pro-environmental descriptive norms are more positive. Journal of Environmental Psychology, 45, 145-153. DOI: 10.1016/j.jenvp.2016.01.001

Boley, B., Nickerson, N., & Bosak, K. (2010). Measuring Geotourism. Journal of Travel Research, 50(5), 567-578. DOI: 10.1177/0047287510382295

Booking.com (2017, April 19). 2017 Sustainable Travel Report [Article]. Retrieved from https://news.booking.com/bookingcoms-2017-sustainable-travel-report/

Brown, Z., Johnstone, N., Haščič, I., Vong, L., & Barascud, F. (2013). Testing the effect of defaults on the thermostat settings of OECD employees. Energy Economics, 39, 128-134. DOI: 10.1016/j.eneco.2013.04.011

Caruana, R., Glozer, S., Crane, A., & McCabe, S. (2014). Tourists' accounts of responsible tourism. Annals of Tourism Research, 46, 115-129. DOI: 10.1016/j.annals.2014.03.006

Cvelbar, L. K., Grün, B., & Dolnicar, S. (2017). Which hotel guest segments reuse towels? Selling sustainable tourism services through target marketing. Journal of Sustainable Tourism, 25(7), 921-934. DOI: 10.1080/09669582.2016.1206553

Day, J. & Hebrová, A. (2016). *Prague Green City Guide*. Prague, Czech Republic: Self-published.

Dodds, R., & Butler, R. (2009). Barriers to implementing sustainable tourism policy in mass tourism destinations, 35-53. Retrieved from https://mpra.ub.uni-muenchen.de/25162/

Dolnicar, S. (2010). Identifying tourists with smaller environmental footprints. Journal of Sustainable Tourism, 18(6), 717-734. DOI: 10.1080/09669581003668516

Dolnicar, S. (2004). Insights into Sustainable Tourists in Austria: A Data-based A Priori Segmentation Approach. Journal Of Sustainable Tourism, 12(3), 209-218. DOI: 10.1080/09669580408667234

Dolnicar, S., Knezevic Cvelbar, L., & Grün, B. (2017). Do pro-environmental appeals trigger pro-environmental behavior in hotel guests?. Journal of Travel Research, 56(8), 988-997. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0047287516678089

Dolnicar, S., & Leisch, F. (2008). An investigation of tourists' patterns of obligation to protect the environment. Journal of Travel Research, 46(4), 381-391. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0047287507308330

Dunlap, R. E., & Heffernan, R. B. (1975). Outdoor recreation and environmental concern: An empirical examination. Rural Sociology, 40(1), 18. Retrieved from https://search.proquest.com/openview/df0f45943dccaea6d978bea73aef0f8c/1?pq-origsite=gscholar&cbl=1817355

Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the new environmental paradigm: A revised NEP scale. Journal of Social Issues, 56, 425–442. Retrieved from https://spssi.onlinelibrary.wiley.com/doi/full/10.1111/0022-4537.00176

Dunlap, R. E., & Van Liere, K. D. (1978). The "new environmental paradigm". The Journal of Environmental Education, 9(4), 10e19. DOI: 10.1080/00958964.1978.10801875

Durrheim, K., & Tredoux, C. (2004). *Numbers, hypotheses & conclusions: A course in statistics for the social sciences*. Cape Town, South Africa : UCT Press. Retrieved from https://goo.gl/tGCixS

Economist Intelligence Unit. (2009). *European Green Cities Index*. Munich, Germany: Siemens AG. Retrieved from https://www.siemens.com/entry/cc/features/greencityindex_international/all/en/pdf/report_en.pdf

Egebark, J., & Ekström, M. (2016). Can indifference make the world greener?. Journal of Environmental Economics and Management, 76, 1-13. Retrieved from https://www.sciencedirect.com/science/article/pii/S009506961500090X

Ellen, P. S., Wiener, J. L., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. Journal of public policy & marketing, 102-117. Retrieved from http://www.jstor.org/stable/30000238?seq=1#page_scan_tab_contents

European Cities Marketing. (2017). *Benchmarking Report*. Dijon, France: European Cities Marketing. Retrieved from https://www.europeancitiesmarketing.com/european-

cities-marketing-benchmarking-report-2017-confirms-the-resilience-of-european-cities/

Eurostat. (2016, April). Urban Europe — statistics on cities, towns and suburbs — tourism and culture in cities [Article]. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban_Europe_%E2%80%94_statistics_on_cities,_towns_and_suburbs_%E2%80%94_tourism_and_culture_in_cities

Filimonau, V., Dickinson, J., Robbins, D., & Reddy, M. (2013). The role of 'indirect' greenhouse gas emissions in tourism: Assessing the hidden carbon impacts from a holiday package tour. Transportation Research Part A: Policy And Practice, 54, 78-91. DOI: 10.1016/j.tra.2013.07.002

Formica, S., & Uysal, M. (2001). Segmentation of travelers based on environmental attitudes. Journal of Hospitality & Leisure Marketing, 9(3-4), 35-49. DOI: 10.1300/J150v09n03_04

Franzen, A., & Vogl, D. (2013). Two decades of measuring environmental attitudes: A comparative analysis of 33 countries. Global Environmental Change, 23(5), 1001-1008. DOI: 10.1016/j.gloenvcha.2013.03.009

Fullagar, S., Markwell, K., & Wilson, E. (Eds.). (2012). *Slow tourism: Experiences and mobilities* (Vol. 54). Channel View Publications.

Fuller, D., Hanlan, J., & Wilde, S. J. (2005). Market segmentation approaches: do they benefit destination marketers? School of Commerce and Management Papers, 149. Retrieved from https://epubs.scu.edu.au/cgi/viewcontent.cgi?referer=https://scholar.google.cz/&httpsredir=1&article=1146&context=comm_pubs

Gibson, A., Dodds, R., Joppe, M., & Jamieson, B. (2003). Ecotourism in the city? Toronto's green tourism association. *International Journal of Contemporary Hospitality Management*, *15*(6), 324-327. Retrieved from https://www.emeraldinsight.com/doi/abs/10.1108/09596110310488168

Gössling, S. (2002). Global environmental consequences of tourism. Global environmental change, 12(4), 283-302. DOI: 10.1016/S0959-3780(02)00044-4

Gössling, S. (2015). New performance indicators for water management in tourism. Tourism Management, 46, 233-244. DOI: 10.1016/j.tourman.2014.06.018

Grybovych, O., Cela, A., Inui, Y., & Lankford, S. V. (2005). An exploratory study of environmental values and beliefs of Japanese adventure tourists in Hawaii. e-Review of Tourism Research, 3(2), 23-30. Retrieved from http://ertr.tamu.edu/files/2012/09/210_a-3-2-1.pdf

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude-behavior relationships: A natural experiment with curbside recycling. Environment and behavior, 27(5), 699-718. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0013916595275005

Hall, C. M. , Gössling, S. , & Scott, D. (2015). *The Routledge handbook of tourism and sustainability*. New York, New York: Routledge. Retrieved from https://books.google.cz/books?hl=en&lr=&id=NaygBgAAQBAJ&oi=fnd&pg=PP1&dq=sustainability+of+tourism&ots=E6JaaZccg3&sig=WizlACPf45y4X03-ydyBkJ2-_-c&redir_esc=y#v=onepage&q=sustainability%20of%20tourism&f=false

Han, H., Hsu, L. T. J., Lee, J. S., & Sheu, C. (2011). Are lodging customers ready to go green? An examination of attitudes, demographics, and eco-friendly intentions. International Journal of Hospitality Management, 30(2), 345-355. DOI: 10.1016/j.ijhm.2010.07.008

Han, H., Hwang, J., Kim, J., & Jung, H. (2015). Guests' pro-environmental decision-making process: Broadening the norm activation framework in a lodging context. International Journal of Hospitality Management, 47, 96-107. DOI: 10.1016/j.ijhm.2015.03.013

Hawcroft, L., & Milfont, T. (2010). The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. Journal of Environmental Psychology, 30(2), 143-158. DOI: 10.1016/j.jenvp.2009.10.003

Higham, J. E. S., Carr, A. M., & Gale, S. (2001). Ecotourism in New Zealand: Profiling visitors to New Zealand Ecotourism. Department of Tourism, University of Otago. Retrieved from https://www.researchgate.net/profile/Anna_Thompson3/publication/251780193_Ecotourism_in_New_Zealand_Profiling_visitors_to_New_Zealand_Ecotourism_Operations/links/55cb22b908aeca747d6a0a15.pdf

Hirsh, J. B., & Dolderman, D. (2007). Personality predictors of consumerism and environmentalism: A preliminary study. Personality and individual differences, 43(6), 1583-1593. DOI: 10.1016/j.paid.2007.04.015

Homonoff, T. A. (2013). Can Small Incentives Have Large Effects?: The Impact of Taxes Versus Bonuses on Disposable Bag Use. Princeton University, Industrial Relations Section. Retrieved from http://www.jstor.org/stable/pdf/prancotamamnta.105.64.pdf?seq=1#page_scan_tab_contents

International Monetary Fund. (2017). World Economic Outlook Database [Database]. Retrieved from https://www.imf.org/external/pubs/ft/weo/2017/02/weodata/index.aspx

Jaiswal, D., & Kant, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. Journal of Retailing and Consumer Services, 41, 60-69. DOI: 10.1016/j.jretconser.2017.11.008

Joshi, Y., & Rahman, Z. (2015). Factors affecting green purchase behaviour and future research directions. International Strategic Management Review, 3(1-2), 128-143. DOI: 10.1016/j.ism.2015.04.001

Juvan, E., & Dolnicar, S. (2016). Measuring environmentally sustainable tourist behaviour. Annals Of Tourism Research, 59, 30-44. DOI: 10.1016/j.annals.2016.03.006

Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. Annals of Tourism Research, 48, 76-95. Retrieved from http://www.sciencedirect.com/science/article/pii/S0160738314000668

Kang, K. H., Stein, L., Heo, C. Y., & Lee, S. (2012). Consumers' willingness to pay for green initiatives of the hotel industry. International Journal of Hospitality Management, 31(2), 564-572. DOI: 10.1016/j.ijhm.2011.08.001

Kiatkawsin, K., & Han, H. (2017). Young travelers' intention to behave pro-environmentally: Merging the value-belief-norm theory and the expectancy theory. Tourism Management, 59, 76-88. DOI: 10.1016/j.tourman.2016.06.018

Kim, H., Borges, M. C., & Chon, J. (2006). Impacts of environmental values on tourism motivation: The case of FICA, Brazil. Tourism management, 27(5), 957-967. DOI: 10.1016/j.tourman.2005.09.007

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?. Environmental education research, 8(3), 239-260. DOI: 10.1080/13504620220145401

Lee, T., Jan, F., & Yang, C. (2013). Conceptualizing and measuring environmentally responsible behaviors from the perspective of community-based tourists. Tourism Management, 36, 454-468. DOI: 10.1016/j.tourman.2012.09.012

López-Sánchez, Y., & Pulido-Fernández, J. (2016). In search of the pro-sustainable tourist: A segmentation based on the tourist "sustainable intelligence". Tourism Management Perspectives, 17, 59-71. DOI: 10.1016/j.tmp.2015.12.003

Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. Global environmental change, 17(3-4), 445-459. DOI: 10.1016/j.gloenvcha.2007.01.004

Luo, Y., & Deng, J. (2008). The New Environmental Paradigm and nature-based tourism motivation. Journal of Travel research, 46(4), 392-402. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0047287507308331

Luzar, E. J., Diagne, A., Gan, C., & Henning, B. R. (1995). Evaluating nature-based tourism using the new environmental paradigm. Journal of Agricultural and applied Economics, 27(2), 544-555. DOI: 10.1017/S1074070800028571

Malone, S., McCabe, S., & Smith, A. P. (2014). The role of hedonism in ethical tourism. *Annals of Tourism Research*, *44*, 241-254. DOI: 10.1016/j.annals.2013.10.005

Maloney, M. P., Ward, M. P., & Braucht, G. N. (1975). A revised scale for the measurement of ecological attitudes and knowledge. American psychologist, 30(7), 787. DOI: 10.1037/h0084394

Marquart-Pyatt, S. T. (2012). Contextual influences on environmental concerns cross-nationally: A multilevel investigation. Social science research, 41(5), 1085-1099. DOI: 10.1016/j.ssresearch.2012.04.003

McKercher, B., & Prideaux, B. (2011). Are tourism impacts low on personal environmental agendas?. Journal of Sustainable Tourism, 19(3), 325-345. DOI: 10.1080/09669582.2010.524702

Milfont, T. L., & Duckitt, J. (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. Journal of environmental psychology, 30(1), 80-94. DOI: 10.1016/j.jenvp.2009.09.001

Milfont, T. L., & Markowitz, E. (2016). Sustainable consumer behavior: A multilevel perspective. *Current Opinion in Psychology*, *10*, 112-117. DOI: 10.1016/j.copsyc.2015.12.016

Mont, O., Lehner, M. & Heiskanen, E. (2014). *Nudging – A tool for sustainable behavior?* Stockholm, Sweden: The Swedish Environmental Protection Agency. Retrieved from http://www.swedishepa.se/News-and-press/Pressarkiv/Nyheter-och-pressmeddelanden-2014/Nudging--A-tool-for-sustainable-behavior-/

Nickerson, N., Jorgenson, J., & Boley, B. (2016). Are sustainable tourists a higher spending market?. Tourism Management, 54, 170-177. DOI: 10.1016/j.tourman.2015.11.009

Ojala, M. (2012). Hope and climate change: The importance of hope for environmental engagement among young people. *Environmental Education Research*, *18*(5), 625-642. DOI: 10.1080/13504622.2011.637157

Oreg, S., & Katz-Gerro, T. (2006). Predicting proenvironmental behavior cross-nationally: Values, the theory of planned behavior, and value-belief-norm theory. Environment and Behavior, 38(4), 462-483. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0013916505286012

Oullier, O. & Sauneron, S. (2011). *Green Nudges: new incentives for ecological behavior*. Paris, France: Centre D'analyse Strategique. Retrieved from http://archives.strategie.gouv.fr/cas/en/content/policy-brief-216-nudges-green-new-incentives-green-behavior-march-2011.html

Pavlic, I., Portolan, A., & Butorac, M. (2013). Urban tourism towards sustainable development. *International Journal Of Multidisciplinarity In Business And Science*, *1*(1), 72-79. Retrieved from https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=195653

Peeters, P., Eijgelaar, E., Dubois, G., Strasdas, W., Lootvoet, M., Zeppenfeld, R., & Weston, R. (2015). *Research for TRAN Committee - From responsible best practices to sustainable tourism development.* Brussels, Belgium: European Parliament, Directorate General for Internal Policies, Policy Department B: Structural and Cohesion Policies, Transport and Tourism. Retrieved from https://www.cstt.nl/publications/From-responsible-best-practices-to-sustainable-tourism-development/1178

Plavsic, S. (2013). An investigation of gender differences in pro-environmental attitudes and behaviors. Retrieved from https://opencommons.uconn.edu/srhonors_theses/404/

Sachdeva, S., Jordan, J., & Mazar, N. (2015). Green consumerism: moral motivations to a sustainable future. Current Opinion in Psychology, 6, 60-65. DOI: 10.1016/j.copsyc.2015.03.029

Schubert, C. (2017). Green nudges: Do they work? Are they ethical?. Ecological Economics, 132, 329-342. DOI: 10.1016/j.ecolecon.2016.11.009

Schultz, P. W., & Zelezny, L. C. (1998). Values and proenvironmental behavior: A five-country survey. Journal of cross-cultural psychology, 29(4), 540-558. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0022022198294003

Scott, D., Peeters, P., & Gössling, S. (2010). Can tourism deliver its "aspirational" greenhouse gas emission reduction targets?. Journal of Sustainable Tourism, 18(3), 393-408. DOI: 10.1080/09669581003653542

Smith-Sebasto, N. J., & D'Costa, A. (1995). Designing a Likert-type scale to predict environmentally responsible behavior in undergraduate students: A multistep process. The Journal of Environmental Education, 27(1), 14-20. DOI: 10.1080/00958964.1995.9941967

SPSSTests.com (2015, 7 March). Multicollinearity Test Example Using SPSS [Article]. Retrieved from https://www.spsstests.com/2015/03/multicollinearity-test-example-using.html

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. Journal of environmental psychology, 29(3), 309-317. DOI: 10.1016/j.jenvp.2008.10.004

Sudbury-Riley, L., & Kohlbacher, F. (2016). Ethically minded consumer behavior: Scale review, development, and validation. Journal of Business Research, 69(8), 2697-2710. DOI: 10.1016/j.jbusres.2015.11.005

Terrier, L., & Marfaing, B. (2015). Using social norms and commitment to promote pro-environmental behavior among hotel guests. Journal of Environmental Psychology, 44, 10-15. DOI: 10.1016/j.jenvp.2015.09.001

Thaler, R. H., & Sunstein, C. R. (1999). *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT: Yale University Press.

Thomas, G. O., Fisher, R., Whitmarsh, L., Milfont, T. L., & Poortinga, W. (2018). The impact of parenthood on environmental attitudes and behaviour: a longitudinal investigation of the legacy hypothesis. Population and environment, 39(3), 261-276. DOI: 10.1007/s11111-017-0291-1

Torres-Delgado, A., & López Palomeque, F. (2017). The ISOST index: A tool for studying sustainable tourism. Journal Of Destination Marketing & Management. DOI: 10.1016/j.jdmm.2017.05.005

United Nations, Department of Economic and Social Affairs, Population Division. (2014). *World Urbanization Prospects: The 2014 Revision, Highlights*. New York, New York: United Nations. Retrieved from https://esa.un.org/unpd/wup/publications/files/wup2014-highlights.pdf

United Nations Environment Programme, & World Tourism Organization. (2005). *Making tourism more sustainable: a guide for policy makers.* Madrid, Spain: World Tourism Organization. Retrieved from http://www.unep.fr/shared/publications/pdf/dtix0592xpa-tourismpolicyen.pdf

United Nations Environment Programme. (2017). *The Emissions Gap Report 2017: A UN Environment Synthesis Report.* Nairobi, Kenya: United Nations Environment Programme. Retrieved from

https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf?sequence=1&isAllowed=y

United Nations (n.d. a) Sustainable Development Goal 8 [Website]. Retrieved from https://sustainabledevelopment.un.org/sdg8

United Nations (n.d. b) Sustainable consumption and production [Article]. Retrieved from https://sustainabledevelopment.un.org/topics/sustainableconsumptionandproduction

Uysal, M., & Jurowski, C. (1994). Testing the push and pull factors. Annals of tourism research, 21(4), 844-846. Retrieved from https://www.sciencedirect.com/user/login?targetURL=%2Fscience%2Farticle%2Fpii%2F0160738394900914%2Fpdf

Veisten, K., Haukeland, J. V., Baardsen, S., Degnes-Ødemark, H., & Grue, B. (2015). Tourist segments for new facilities in national park areas: Profiling tourists in Norway based on psychographics and demographics. Journal of Hospitality Marketing & Management, 24(5), 486-510. DOI: 10.1080/19368623.2014.911713

Wehrli, R., Egli, H., Lutzenberger, M., Pfister, D., Schwarz, J., Stettler, J. (2011). Is There Demand for Sustainable Tourism? Study for the World Tourism Forum Lucerne 2011. ITW Working Paper Series Tourism 001/2011, Lucerne University of Applied Sciences and Arts. Retrieved from http://www.fairtrade.travel/source/websites/fairtrade/documents/WTFL_Study_is_there_demand_for_Responsible_Tourism_full_version.pdf

Wehrmeyer, W., & McNeil, M. (2000). Activists, pragmatists, technophiles and tree-huggers? Gender differences in employees' environmental attitudes. Journal of Business Ethics, 28(3), 211-222. Retrieved from https://link.springer.com/article/10.1023%2FA%3A1006253212744

Weigel, R., & Weigel, J. (1978). Environmental concern: The development of a measure. Environment and behavior, 10(1), 3-15. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0013916578101001

World Tourism Organization. (2008). *Climate Change and Tourism – Responding to Global Challenges. Report on "Second International Conference on Climate Change and Tourism" from 1st to 3rd October, 2007.* Davos, Switzerland: World Tourism Organization. Retrieved from http://www.unwto.org/sdt/news/en/pdf/climate2008.pdf

World Tourism Organization. (2016). *Global Report on the Transformative Power of Tourism. Affiliate Members Global Report, Volume 14.* Zagreb, Croatia: Institute for Tourism of the World Tourism Organization. Retrieved from https://vpn2.modul.ac.at/proxy/1f23ea30/https/www.e-unwto.org/doi/book/10.18111/9789284417834

World Tourism Organization. (n.d.). Sustainable Tourism [Definition]. Retrieved from http://sdt.unwto.org/content/about-us-5

World Tourism Organization. (2017a). *Tourism and the Sustainable Development Goals – Journey to 2030, Highlights*. Madrid, Spain: World Tourism Organization. Retrieved from https://www.e-unwto.org/doi/pdf/10.18111/9789284419340

World Tourism Organization. (2017b). *Tourism Highlights, 2017 edition, World.* Madrid, Spain: World Tourism Organization. Retrieved from https://www.e-unwto.org/doi/pdf/10.18111/9789284419029

Wurzinger, S., & Johansson, M. (2006). Environmental concern and knowledge of ecotourism among three groups of Swedish tourists. Journal of Travel Research, 45(2), 217-226. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/0047287506291602

Wynes, S., & Nicholas, K. A. (2017). The climate mitigation gap: education and government recommendations miss the most effective individual actions. Environmental

Research Letters, 12(7), 074024. Retrieved from http://iopscience.iop.org/article/10.1088/1748-9326/aa7541/meta

Zelezny, L. C., Chua, P. P., & Aldrich, C. (2000). New ways of thinking about environmentalism: Elaborating on gender differences in environmentalism. Journal of Social issues, 56(3), 443-457. DOI: 10.1111/0022-4537.00177

Zografos, C., & Allcroft, D. (2007). The environmental values of potential ecotourists: A segmentation study. Journal of Sustainable Tourism, 15(1), 44-66. DOI: 10.2167/jost572.0