National culture as a driver of pro-environmental attitudes and behavioural intentions in tourism

Abstract

Voluntary changes in consumer behaviour hold significant potential to mitigate the growing environmental repercussions of tourism. Such behavioural changes can occur due to positive behavioural intentions that are in turn underpinned by pro-environmental consumer attitudes. To reinforce voluntary behavioural changes in tourism, it is paramount to understand the major drivers of pro-environmental consumer attitudes. Although national culture can influence pro-environmental attitudes of tourists, its role has been under-researched, especially in the context of emerging tourist markets. This study utilised the environment-orientated dimensions or value orientations of major cultural frameworks (Hofstede; Schwartz; Trompenaars and Hampden-Turner) to explore the effect of national culture on pro-environmental attitudes and behavioural intentions in a large-scale quantitative survey of Polish tourists. Correlation between the cultural background of tourists and their pro-environmental attitudes was established, thus highlighting the need for national culture to become an integral element of future scientific, policy-making and managerial discourse on the key drivers of more sustainable consumer behaviour in tourism.

Keywords

Highlights

- Explores how national culture influences pro-environmental attitudes of tourists

- Focuses on an emerging tourist market in East-Central Europe, Poland

- Finds correlation between national culture and pro-environmental attitudes

- Shows the validity of major cultural frameworks for the sustainable tourism context

Introduction

Tourism imposes substantial environmental impacts (Gössling 2002) that have become particularly pronounced in terms of carbon footprint build-up (Peeters and Dubois 2010), water consumption (Gössling 2015) and waste generation (Trung and Kumar 2005). International tourist arrivals are expected to grow at an annual rate of 4-5% (UNWTO 2018) emphasising the need to mitigate the increasing environmental repercussions of tourism (Gössling and Peeters 2015). Mitigation can be underpinned by technological innovations, regulatory interventions, and economic (dis)incentives (Filimonau and Högström 2017). It can further be achieved by facilitating voluntary, pro-environmental changes in consumer behaviour (McKercher *et al*. 2010). For most effective mitigation, a balanced mix of the above measures should be developed and applied (Gössling *et al.* 2012).

While voluntary behavioural changes can minimise the environmental impacts of tourism, they have been proven difficult to achieve (Budeanu 2007). Tourists have been found reluctant to change behaviour (Becken 2007), which is often determined by poor public understanding of the environmental implications of individual travel decisions (Becken 2004). Poor public understanding leads to indifferent consumer attitudes that, in turn, translate into irresponsible (or less responsible) behavioural practices among tourists (Gössling *et al.* 2012). It is therefore critical to enhance pro-environmental consumer attitudes in tourism, thus enabling more responsible patterns of tourist behaviour (Hall 2013). To this end, it is important to comprehend what drives pro-environmental attitudes of tourists and design accordingly the intervention measures for their reinforcement (Dolnicar *et al.* 2008).

National culture has for long been considered a potential driver of consumer attitudes and subsequent behaviour in various consumption contexts (Craig and Douglas 2006), including tourism (Moscardo 2004). This notwithstanding, the number of studies aiming to

better understand the effect of national culture on tourist decision-making is limited (Li 2014), especially when examining the role of cultural background in shaping pro-environmental attitudes in tourism (Nejati *et al.* 2015). This hampers the development of effective environmental mitigation measures in tourism as there is insufficient empirical evidence of the determinants of (more) responsible consumer choice (Chiu *et al.* 2014).

This study contributes to knowledge by exploring the role of national culture in shaping pro-environmental consumer attitudes in tourism that can subsequently facilitate changes towards more responsible, environment-benign tourist behaviour. To this end, via a large-scale, quantitative consumer survey, it examines how specific, environment-related dimensions or value orientations of major cultural theories can drive pro-environmental attitudes of Polish tourists and how these attitudes can enable more responsible behavioural intentions. The focus on Poland is deliberate given a steady growth in its outbound tourism market (Central Statistical Office 2017a) and its relative cultural homogeneity (circa 97% of residents are Poles) (Gonda 2006). It is further justified by the limited geographical scope of existing research on the role of national culture in pro-environmental consumer decision-making. Analysis has largely been restricted to the developed countries in the 'west' that represent the mainstay of tourist demand. The rapid growth of tourism in transitional economies of East-Central Europe as predicted by UNWTO (2018) suggests that these countries should now become integral elements of analysis.

Literature review

Tourist attitudes, behavioural intentions and behaviour

Tourist behaviour is difficult to predict as it is underpinned by the complexity of psychological (internal) and environmental (external) variables (Ajzen and Driver 1991). Van Vuuren and Slabbert (2011) posit that tourist behaviour is more complicated than generic

consumer behaviour as it represents a multi-layered construct which should be analysed through a multidimensional and hierarchical lens (Stern 2000). Tourist behaviour is driven by a complex decision-making process, which can be pictured as a funnel with a broad base hosting the multiple decision-making variables (Yoo and Chon 2008). To aid in comprehending tourist behaviour, a number of specialised models have been developed (Mayo and Jarvis 1981; Moutinho 1987; also see Sirakaya and Woodside (2005) for a detailed overview). These models should however be taken with caution as they lack evidence of their empirical applicability to specific tourism contexts and further work is necessary to demonstrate their practical merit as implemented in real-life tourism settings (Bowen and Clarke 2009).

Among the internal drivers of tourist behaviour, tourist attitudes represent an important research object (Leonidou *et al.* 2015). While attitudes do not directly determine behaviour, they can influence behavioural intentions that, in turn, affect individual actions (Ajzen and Fishbein 1980). Indeed, negative consumer attitudes may lead to negative purchasing intentions and bring about negative behavioural patterns, such as boycotting specific products and/or their providers (Cohen *et al.* 2014). Better understanding of consumer attitudes is of particular relevance to the tourism context where negative consumer perceptions may impose a long-lasting, detrimental effect on business success (Gössling and Hall 2006). This can, for example, partially explain the reluctance of tourism and hospitality (especially small and medium-sized) enterprises to engage in environmental management initiatives in fear of causing negative perceptions among consumers, thus leading to reduced sales (Chan 2008). Therefore it becomes paramount to investigate consumer attitudes as a driver of tourist behaviour, especially in response to the potential pro-environmental operational changes envisaged by tourism enterprises, and demonstrate how this driver aligns with the future environmental commitments of tourism businesses (Jeong *et al.* 2014).

Pro-environmental tourist attitudes, behavioural intentions and behaviour

Given the essential role played by voluntary behavioural changes in minimising the environmental impacts of tourism (Kim 2012), the research agenda on the drivers of pro-environmental tourist behaviour is evolving. It has mainly been concerned with drawing associations between public attitudes and pro-environmental behavioural intentions of tourists (Leonidou *et al.* 2015), with a primary focus on developed countries' populations (Dillimono and Dickinson 2015). Prime attention has been given to tourist transportation, with aviation representing the main study domain (Chapman 2007). This is because air travel makes a disproportionally high contribution to the environmental footprint of tourism due to the significant carbon intensity of its operations (Weaver 2011). Modal shift as facilitated by voluntary behavioural changes holds large potential to mitigate the environmental footprint of aviation (Scott *et al.* 2010). This has rationalised an expanding body of academic literature which has set to understand the relationship between public attitudes, behavioural intentions and tourist flying behaviour (Higham and Cohen 2011). Research has concluded that tourists often fail to establish links between their travel patterns and environmental impacts (Kroesen 2013). Studies have further shown that positive public attitudes do not always translate into pro-environmental behaviour in aviation as various internal (for example, environmental knowledge) and external (for instance, journey costs) variables determine this transport choice and shape a so-called 'attitude-behaviour gap' in tourist consumption (Barr *et al.* 2010; Hares *et al.* 2010; Higham *et al.* 2014).

Pro-environmental tourist attitudes and behavioural intentions have also been examined in the context of hospitality, where consumer perceptions of the 'greener' tourist accommodation choices and more responsible catering practices have been investigated (Manaktola and Jauhari 2007). Similar to the tourism transport context, research has demonstrated the complex relationship between tourist attitudes, behavioural intentions and

pro-environmental behaviour in hospitality. Limited environmental knowledge underpins poor consumer recognition of the environmental repercussions of hospitality operations with subsequent negative attitudes (Filimonau *et al.* 2017). This notwithstanding, some positive correlation has been established between consumer attitudes and the environmental management initiatives implemented in hotels (Han *et al.* 2010) and restaurants (Namkung and Jang 2013), with consumer willingness to support these on practice, i.e. either by paying a 'green' premium or by engaging in environmental conservation activities (Kang *et al.* 2012). The higher probability of pro-environmental behavioural intentions to occur in the context of hospitality as compared to tourist transportation can be partly attributed to the lower costs and the fewer efforts that are required to facilitate more responsible behavioural changes in the hospitality context. Indeed, the effort made to re-use towels in hotels is incomparable with a voluntary modal shift to reach a destination.

Existing studies on pro-environmental attitudes and behavioural intentions in tourism have two important shortcomings. First, they have focused on tourists from developed countries given that these account for the largest share of international travel and associated environmental impacts (see, for instance, Gössling *et al.* 2009; Higham *et al.* 2016a; Juvan *et al.* 2016). Although developed countries will remain the mainstay of tourist demand in the foreseeable future (UNWTO 2018), there is a steady growth in outbound tourism in developing and transitional economies. To better understand the potential for environmental mitigation in tourism via voluntary, pro-environmental changes in consumer behaviour, it is critical to identify the determinants of more responsible attitudes and subsequent pro-environmental behavioural intentions among the 'non-western' tourists. Although the research agenda is gradually expanding in this direction (see, for instance, Dillimono and Dickinson 2015; Horng *et al.* 2014; Tao *et al.* 2004), more empirical, comparative studies are necessary to inform national policy-making and managerial practice. Second, the majority of

studies on pro-environmental attitudes and behaviour in tourism have largely excluded the element of national culture from analysis. Although the role of national culture in driving pro-environmental attitudes and subsequent behavioural intentions of tourists has been acknowledged (see, for instance, Campos-Soria *et al.* 2018; Lee and Jan, 2015; Zhang *et al.* 2014), this effect has never been tested empirically through the lens of specific cultural frameworks. Yet, national culture holds substantial potential to affect consumer choice and may represent a major driver of travel decisions (Reisinger and Crotts 2009). It should be more carefully investigated to better understand its effect on pro-environmental attitudes and subsequent behaviour in tourism.

The national culture effect

Within the complexity of psychological variables affecting tourist attitudes, national culture may represent a cornerstone of tourist decision-making (Woodside *et al.* 2011). The definition of national culture by Hofstede is the most widely cited in cultural studies (Jones 2007). It suggests that national culture represents 'the collective programming of the mind which distinguishes the members of one group or category of people from others' (Hofstede 2003, p.5). Although the effect of national culture on tourist motivation (Ng and Soutar 2007), destination choice (Seddighi *et al.* 2001), purchasing intentions (Money and Crotts 2003) and structure of travel groups (Filimonau and Perez 2018) has been investigated, the research agenda remains non-systematic (Ahn and McKercher 2015). Further, the role of national culture in shaping tourist attitudes has been overlooked in many contexts of tourism academic research, especially from the viewpoint of empirical investigation (Kozak 2002). This signifies a crucial knowledge gap given the significant implications of this topic for tourism planning, marketing, management and policy-making (Lam and Hsu 2006).

Pro-environmental attitudes and behavioural intentions represent one of the research contexts in tourism where studies on the role of national culture are rare (Nejati *et al.* 2015).

In their seminal work, Hudson and Ritchie (2001) explored public attitudes to the environment among international skiers. Kang and Moscardo (2006) investigated consumer attitudes to responsible holidaying behaviour among the representatives of three cultural backgrounds. Weeden (2011) studied the effect of culture on ethical consumption in tourism. Landauer *et al.* (2013) looked at the culture-imposed variations in tourist preferences for climate change adaptation strategies. Lastly, a more recent study by Kim and Filimonau (2017) examined the role of language, as a cognitive element of national culture, in driving pro-environmental attitudes in tourism. Correlation between the cultural background of tourists and their pro-environmental attitudes has been established in the literature which underlines the importance of this topic and emphasises the need for future, in-depth investigation.

Cultural dimensions and pro-environmental attitudes

A number of cultural frameworks (see, for example, the seminal works by Hofstede 1980; Lewis 2006; Schwartz 1999; Trompenaars and Hampden-Turner 1997) have been developed to aid in understanding of how the core attributes of specific national cultures can affect consumer behaviour. The merit of these cultural frameworks has been validated in various consumption contexts, including tourism (see, for example, Lam and Hsu 2006; Yang and Wong 2012; You *et al.* 2000). Cultural frameworks are underpinned by particular cultural dimensions or cultural value orientations that enable generalisations and facilitate cross-cultural analysis (Magnusson *et al.* 2008).

It is important to differentiate between the notions of cultural dimensions and cultural value orientations. Cultural dimensions were first proposed by Hofstede (1980) and then utilised by Trompenaars and Hampden-Turner (1997) in an attempt to identify a set of common cultural values that can prescribe human behaviour. An alternative theory of cultural value orientations was suggested by Kluckhohn and Strodtbeck (1961) and subsequently

examined empirically by Schwartz (1999; 2006). The key difference between these theories is in that the cultural value orientation approach has an individual at the core of analysis, implying that each consumer assigns a different value to a specific phenomenon and this value is based on their personal preferences and orientations that are underpinned by the individual's cultural norms and beliefs. In contrast, theories proposed by Hofstede and Trompenaars and Hampden-Turner utilise the self-developed cultural dimensions as a starting point of analysis, suggesting that these are common across consumers from specific national cultures. In other words, the cultural value orientation approach applies a bottom-up perspective when examining the role of national culture in consumption while Hofstede and Trompenaars and Hampden-Turner adopt the top-down viewpoint. The number of studies underpinned by the cultural value orientation approach in examining the national culture effect on tourist consumption is growing (see, for example, Nath *et al.* 2016 and Watkins and Gnoth 2011), also in the context of pro-environmental attitudes and pro-environmental behavioural intentions in tourism (see, for instance, Landauer *et al.* 2013 and Paudyal *et al.* 2015) while the cultural dimensions of Hofstede and Trompenaars and Hampden-Turner are equally, if not more, popular (Watkins and Gnoth 2011). Most importantly, empirical research has shown that both the cultural dimensions and the cultural value orientations often overlap suggesting that, conceptually, all cultural frameworks are the same (Taras *et al.* 2009).

There are a number of cultural dimensions/value orientations in existing cultural frameworks that can explain public attitudes towards the environment (Namkung and Jang 2013). The Individualism/Collectivism dimension by Hofstede (1980) or similar Individualism/Communitarianism dimension by Trompenaars and Hampden-Turner (1997) implies that collectivistic cultures are more likely to demonstrate pro-environmental attitudes and pro-environmental behavioural intentions than individualistic cultures. This is because

the environment is viewed as a 'common commodity' which every member of a collectivistic culture should have equal access to and look after (Collins *et al.* 2007). Pro-environmental values are therefore best reflected in the collectivistic cultural realm (Tarkiainen and Sundqvist 2009). Next, the Long-term/Short-term orientation dimension by Hofstede (1980), which deals with the time perspective, suggests that long-term orientated cultures should exemplify higher pro-environmental attitudes compared to short-term orientated cultures. This is because most of environmental impacts (for example, climate change) will occur in the future (Rossello-Nadal 2014) and, hence, long-term orientated cultures should be more concerned about the future repercussions of their activities, such as flying with holidaying purposes. Lastly, the Harmony/Mastery dimension/value orientation by Schwartz (1999) or the similar Internal/External Direction dimension by Trompenaars and Hampden-Turner (1997) enables understanding of how national cultures consider the environment in terms of its management. While Harmony-aligned national cultures are pro-social and tend to view the environment as an integral element of their day-to-day lives which should not be controlled, exploited or modified, Mastery-aligned national cultures are self-focussed and perceive the environment as a functional tool to achieve individual aims and facilitate personal growth, thus justifying the need for its control (Hedlund-de Witt *et al.* 2014). Surprisingly, no research has been undertaken to date to examine the role of these cultural dimensions in shaping pro-environmental attitudes and subsequent behavioural intentions in tourism.

Knowledge gap

Although the importance of studying the relationship between national culture and pro-environmental attitudes has been recognised, no comprehensive analysis has been undertaken on how specific cultural dimensions could become the determinants of pro-environmental attitudes and subsequent more responsible behaviour in tourism. The geographical scope of existing cultural analysis has further been limited to English-speaking countries (Li 2014).

This paper contributes to knowledge by expanding the scope of national culture research in tourism towards Poland, a growing tourist market in East-Central Europe. The environmental repercussions of tourism growth in Poland ought to be mitigated while better understanding of the role of national culture in shaping pro-environmental attitudes and behavioural intentions of tourists should aid in developing more effective mitigation measures. To this end, the paper explores the effect of national culture on pro-environmental attitudes of Polish tourists by employing the three cultural dimensions/value orientations proposed by Hofstede (1980), Schwartz (1999) and Trompenaars and Hampden-Turner (1997) that can affect pro-environmental attitudes, as per above.

Tourism in Poland

The socio-demographic, psychological and behavioural profile of consumers can influence their attitudes to the environment and, subsequently, affect their pro-environmental behaviour (Laroche et al. 2001). Likewise, the settings where consumption takes place can influence consumer perceptions and shape specific behavioural patterns (Miao and Wei 2013). For example, in nature tourism destinations tourists are more likely to have positive attitudes to the environment and actively engage in environmental conservation activities (Halpenny 2010). This is as opposed to mass tourism destinations where consumer perception of and willingness to contrite to environmental conservation can be less pronounced (Oom do Valle *et al.* 2012). This underlines the importance of better understanding and contextualising tourism in Poland, especially in relation to identifying prospective drivers of pro-environmental attitudes among Polish tourists.

Since late 1990s, Poland has been playing an increasingly important role in the European tourism market. In terms of inbound tourism, with its about 17.5 million international tourist arrivals, Poland was the sixth most popular destination in Europe in 2016 (UNWTO 2017). The majority of tourists (circa 76%) came from other EU countries, where

Germany was the leading market (Ministry of Sport and Tourism of the Republic of Poland 2017). The size of the outbound tourism market in Poland was estimated at circa 11.3 million in 2016 which indicates a growth of 11% since 2012 (Central Statistical Office 2017a). Germany is the most popular destination with Polish tourists due to its proximity (Central Statistical Office 2017a) followed by the UK which is an important market for Polish labour migrants (Filimonau and Mika 2017). Mass tourism destinations in the Mediterranean countries (Portugal, Spain, Italy and Greece) represent another mainstay of outbound tourism demand in Poland and the number of long-haul trips to East Asia and Americas is gradually increasing (Central Statistical Office 2017a). Further, domestic tourism has traditionally been popular in Poland with 43.5 million trips recorded in 2016 (Ministry of Sport and Tourism of the Republic of Poland 2017). Seaside destinations in the north of the country and mountain destinations in the south prevail among domestic tourists in Poland.

Typical tourist behaviour in Poland largely replicates typical tourist behaviour in countries of Western Europe a decade ago. It is characterised by mass consumption where service standards and price represent the determinants of consumer choice (Mika 2014). Although the levels of public environmental awareness in Poland are gradually increasing, consumer knowledge of tourism's environmental impacts and consumer attitudes to the need of their minimisation remain low (Dickinson *et al.* 2013). Promotion of sustainable consumption patterns in Polish tourism therefore represents a real challenge and joint efforts of all national stakeholders are necessary to achieve meaningful changes (Mika 2014).

Research design

Study case and data collection

The study collected data from a sample of Polish tourists in Krakow (Malopolska region). Krakow was selected as a data collection destination because it is the second largest

city in Poland, hosting the second busiest airport and attracting the largest number of tourists in the country (Central Statistical Office 2015). According to statistical data from Malopolska Tourist Organisation (MTO 2018), in 2017 Krakow hosted 12.8 million tourists where 9.8 million were domestic and 3 million - international. This suggests that Krakow holds circa 23% of all domestic (Ministry of Sport and Tourism of the Republic of Poland 2017) and about 27% of all international (Central Statistical Office 2017a) tourism market in Poland.

For data collection, the study utilised a self-completion survey technique which was administered face-to-face in popular public places of Krakow within the period of June-September 2016. A non-probability sampling strategy on a 'next-to-pass' basis was utilised. The response rate was circa 60% which is in line with other studies of public opinion in tourism conducted in the Polish context (Dickinson *et al.* 2013).

Despite the application of a non-probability sampling strategy, the profile of the sample collected (n=454) was well-structured and broadly representative of the Polish population (Table 1). Although the sample contained a substantial number of students (21.8%) aged 16-24, it is the nature of the national education system in Poland that most students in this country (and many other countries in East-Central Europe) are aged at 19-25. Most of the younger respondents aged below 19 within the sample were in the category of 'Other' in terms of 'Occupation' and 'Level of education'. The sample contained 47.1% respondents with the personal salary below the nation's average (Table 1). This is in line with national statistics pointing that about 50% of salaries across Poland in 2016 were below the nation's average (Central Statistical Office 2016). 35.5% of respondents in the sample finished secondary school (Table 1), which is also in line with national statistics indicating that 36.8% of the Polish population completed secondary education (Central Statistical Office 2017b). The only noticeable discrepancy between the achieved sample and national statistics was in terms of the number of respondents who were University degree holders and above. There are

43.4% of such respondents in the sample (Table 1) while national statistics report 29.1% (Central Statistical Office 2017b). This is attributed to the fact that primary data were collected in the academic city of Krakow which hosts a large number of institutions of higher education. Similar sample limitation was reported in Dickinson *et al.* (2013) who collected primary survey data in Krakow.

[Insert Table 1 here]

Questionnaire design

The titerature review informed design of the survey questionnaire. Questions were developed in Polish based on the outcome of a small-scale quantitative study piloted in English in the UK. To ensure fluency in Polish language, the back-translation technique was utilised as prescribed by Brislin (1970). Back translation was performed by two bilingual academics and tested on a handful of willing subjects in Poland.

Questions were organised in three main sections. Section 1 (7 statements) aimed at establishing the level of public understanding of the inter-linkages between tourism and environmental impacts in Poland, most notably in the context of aviation and climate change. Section 2 (8 statements) strove to examine perceptions of Polish tourists of the need to mitigate the environmental repercussions of their holidays, including the role of individual actions and actions of other tourism stakeholders, such as national governments and industry representatives. This section also included 2 items that were designed to measure consumer willingness to modify their holidaying behaviour so that it becomes more environmentally responsible. Section 3 (10 statements) employed questions derived from the three, environment-related cultural dimensions/value orientations of major cultural frameworks (Hofstede 1980; Schwartz 1999; Trompenaars and Hampden-Turner 1997) to understand the role of national culture in shaping pro-environmental attitudes and subsequent behavioural intentions of Polish tourists (Table 2). More specifically, the questions were built on the

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following dimensions: Individualism/Collectivism whose score of 60 for Poland indicates that it is a rather individualistic society with subsequent lower pro-environmental attitudes (Hofstede Centre 2017); Long-term/Short-term orientation whose scope of 38 for Poland pinpoints a short-term orientated society characterised by lower pro-environmental attitudes (Hofstede Centre 2017); and Harmony/Mastery whose score of circa 0.83 for Poland suggests that it is a Harmony-aligned nation with consequent higher pro-environmental attitudes (Schwartz 2006). Questions in Sections 1-3 were operationalised using the attitudinal, 5-point Likert rating scale ranging from strongly agree (1) to strongly disagree (5). Additional items collected basic socio-demographic information, including recent travel patterns with holidaying reasons. The survey data were processed and analysed using SPSS Statistics 23.0.

[Insert Table 2 here]

Data analysis technique

To better understand the role of national culture in shaping pro-environmental attitudes of Polish tourists, Structural Equation Modeling based on Partial Least Squares (SEM-PLS) was selected for data analysis. SEM-PLS is a variance-based, distribution-independent technique suitable for structural equation modeling in the context of high complexity with limited theoretical support and development (Reinartz *et al.* 2009). This statistical technique is appropriate for exploratory and predictive purposes when attempting to identify new, potential causal relationships and when the measurement instruments are not yet properly formed (Roldan and Sánchez-Franco 2012). Hence, structural equation modeling based on PLS represents an adequate research technique for this study given its exploratory nature.

Data analysis

Preliminary factor analysis of pro-environmental attitudes

As a preliminary step, principal component analysis was performed to identify the underlying dimensions of pro-environmental attitudes. It was supplemented with exploratory factor analysis (EFA) which delineated patterns of factors underpinning pro-environmental attitudes of Polish tourists. This is to create a structural model in PLS composed of valid and reliable latent variables. Importantly, factor analysis was not applied to the dimensions of national culture as these have been sufficiently analysed and validated in previous studies, also in tourism (see, for example, Magnusson *et al.* 2008; Reisinger and Crotts 2009; Soares *et al.* 2007). Varimax orthogonal rotation was used to obtain the rotated factors. The Kaiser-Meyer-Olkin (KMO) index and the Bartlett's sphericity test supported the factorability of the correlation matrix (Table 3). Table 3 shows the structure matrix of these constructs after carrying out a varimax orthogonal rotation. Items with low factorial loadings (<0.5) were removed from EFA and not displayed in the table.

[Insert Table 3 here]

The rotated solutions (Table 3) revealed the presence of four factors underlying pro-environmental attitudes of Polish tourists. Interpretation of these factors is as follows. Factor 1 holds the four items that exemplify negative tourist attitudes towards environmental conservation. Here, Polish tourists consider climate change a natural phenomenon which they have no responsibility for and whose magnitude has been exaggerated. Hence, this factor was named Anti-Environmental Attitudes (AEA). Higher scores in this factor indicated less favourable tourist attitudes towards the need to protect the environment. Factor 2 covered the two items related to day-to-day environmental behaviour of tourists and tested consumer knowledge about the problem of climate change. Higher scores in this factor indicated better tourist knowledge about climate change and higher intentions to demonstrate more responsible, pro-environmental behaviour in daily life. This factor was named Personal Environmental Interest (PEI). Factor 3 included the four items that measured tourist

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perceptions of the environmental impacts attributed to tourism in general, and their specific sectors and individual tourist behaviour in particular. Higher scores in this factor indicated higher tourist concern about the negative environmental repercussions of tourism. This factor was labeled Tourism Environmental Impact (TEI). Lastly, factor 4 clustered the two items on tourist perceptions of the role of national governments and commercial tourism operators in minimising the environmental footprint of tourism. Higher scores in this factor indicated higher expectations of the government and industry engagement in mitigating the negative environmental impacts of tourism operations. This factor was named Public and Private Environmental Responsibility (PPER).

Table 4 provides descriptive statistics for the variables that measured the relationship between the dimensions of national culture and behavioural intentions. It should be noted that, in order to operationalise these constructs and incorporate these in the structural equation model, the items had to be re-coded to direct the variables. Consequently, these latent variables were operationalised as the broad dimensions of the different national cultural traits related to pro-environmental attitudes. The higher scores of the Individualism-Collectivism variable indicated the stronger Individualism trait. Specifically, this construct reflected the individual's concern of the negative effect imposed by their behaviour on the environment. The higher scores of the (Short/Long term) Orientation variable indicated longer-term orientation. This variable captured the individual's perception of the effect imposed by their behaviour on the future state of the environment. The higher scores of the Harmony-Mastery variable pinpointed a higher harmony-aligned culture. This construct dealt with the individual's consideration of the primacy of the environment over the human goals and the role of humanity in minimising negative environmental impacts. Lastly, the higher scores of tourist behavioral intentions (TBI) indicated stronger willingness to modify travel behavior to make it more environment-benign.

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[Insert Table 4 here]

Evaluation of the SEM-PLS model

To analyse the effect of national culture on pro-environmental attitudes and subsequent behavioral intentions of Polish tourists, a PLS-based model was constructed. The specific SEM literature indicates two stages for this analysis (Gefen et al. 2000). First, the assessment of the measurement or the outer model should be conducted. This model attempts to analyse if the theoretical constructs are correctly measured by the study's measures. Second, the evaluation of the structural or the inner model should be undertaken. The structural model evaluates the significance, the magnitude and the sign of the structural model's relationships between the latent variables. In the structural equation model, the three national cultural dimensions/value orientations utilised in this study were considered the antecedents of pro-environmental attitudes while these pro-environmental attitudes were subsequently viewed as the predictors of environmentally responsible behavioral intentions of Polish tourists. Figure 1 presents the conceptual model adopted in this study.

[Insert Figure 1 here]

Assessment of the measurement model

To assess the suitability of the measurement model, the latent variables' individual reliability, composite reliability and convergent and discriminant validity were first examined. In this initial assessment composite reliability (CR) and convergent validity were not met as the CR index and the average variance extracted (AVE) value of the Individualism-Collectivism and Harmony-Mastery variables fell below the critical thresholds. More specifically, items IND4 (λ=0.598), HARM3 (λ=0.419) and HARM4 (λ=0.176) (Table 4) showed very reduced individual factor loadings for their respective latent variables. These items were therefore removed from the model and the re-assessment was held whose

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outcome is presented in Table 5. Here, individual reliability was confirmed as, for most of the items, the outer loadings on their respective latent variables were above the critical threshold of 0.7 (Carmines and Zeller 1979). Although some factorial loadings were slightly below the critical threshold of 0.7, these were retained in the model to preserve content validity and because the CR and AVE values were acceptable (Hair *et al.* 2011). In fact, the CR values were above the critical threshold of 0.7 and the AVE values were all above, or close to, 0.5. This demonstrated composite reliability and convergent validity of the model. Lastly, discriminant validity was verified using the Fornell and Larcker (1981) criterion. This enabled comparison of the squared root of the latent variables' AVE values with the correlations of the every pair of variables in the model. Table 6 reports the results of analysis and verifies that latent variables share more common variance with the assigned indicators than with any other indicators in the model, thus accepting discriminant validity.

[Insert Table 5 here]

[Insert Table 6 here]

Assessment of the structural model

After the validation of the measurement model, the structural model was assessed to establish significance of the path coefficients. To this end, a bootstrapping procedure with 5.000 subsamples was employed. The bootstrapping technique is a common nonparametric test of resampling in PLS (Hair *et al.* 2011). The model explained 22.9% of AEA, 27.2% of PEI, 11.4% of TEI, of 11.8% PPER and 25.8% of TBI variance. A Stone-Geisser test was also performed to verify the existence of predictive relevance. The results suggested that predictive relevance was met since all the Q^2 values were positive. Table 7 presents the outcome of the resultant structural model.

[Insert Table 7 here]

Interpretation of results

The analysis demonstrated that the higher scores of Individualism demonstrated by the majority of Polish tourists were positively and significantly related to Anti-Environmental Attitudes (β=0.200; t=3.486) and negatively and significantly connected to Personal Environmental Interest (β=0.200; t=3.486). However, this variable was not a significant predictor of tourist perceptions of the environmental impacts of tourism (β=-0.084; t=1.200) and of the role of public and private tourism enterprises in mitigating the environmental problems of tourism (β=0.010; t=0.865). In other words, the results revealed that the higher scores of Collectivism were well correlated with a stronger concern among Polish tourists of the environmental footprint of holidaymaking and a stronger willingness to modify individual tourist behaviour to make it more environmentally responsible.

For the Long-term orientation dimension, analysis showed that Long-term orientation was negatively and significantly associated with Anti-Environmental Attitudes (β=-0.201; t=3.687) and positively related to tourist perceptions of the environmental impacts of tourism (β=0.283; t=4.872) in Poland. This variable was further positively, but not significantly, correlated with Personal Environmental Interest (β=0.057; t=0.976) and perceptions of the role of national governments and private tourism operators in minimising the magnitude of the environmental impacts from tourism (β=0.081; t=1.239). In other words, the higher scores on the Long-term orientation dimension determined more favourable environmental attitudes among Polish tourists with further potential willingness to change individual holidaying behaviour to make it more environmentally responsible.

The model revealed that the higher scores on the Harmony-Alignment dimension/value orientation demonstrated by Polish tourists had a negative impact on Anti-Environmental Attitudes (β=-0.162; t=2.911), and a positive and significant impact on Personal Environmental Interest (β=0.219; t=3.532) and tourist perceptions of the responsibility of

public and private tourism enterprises in minimising the environmental problems of tourism (β=0.301; t=4.586). However, this variable was not significantly associated with Tourism Environmental Impacts (β=-0.003; t=0.055). Thus, analysis suggested that Polish tourists with the higher scores on Harmony would be more inclined to preserve the environment as they demonstrated stronger pro-environmental attitudes. They would still however assign a major role in mitigating the negative environmental repercussions of tourism to national governments and tourism industry representatives, rather than to their individual actions.

Lastly, the model examined how pro-environmental attitudes could affect tourist willingness to modify behaviour to make it more environmentally responsible in Poland. Analysis showed than the Anti-Environmental Attitudes, Personal Environmental Interest and Tourism Environmental Impact dimensions explained tourist intentions to change behavioural patterns. Specifically, Anti-Environmental Attitudes had a negative effect (β=-0.192; t=3.928), while Personal Environmental Interest (β=0.245; t=5.163) and Tourism Environmental Impact (β=0.290; t=5.903) exerted a positive effect. Tourist perceptions of the role of national governments and tourism industry representatives did not significantly affect this variable (β=-0.003; t=0.068). Figure 2 summarises the model's main findings.

[Insert Figure 2 here]

Discussion

The study demonstrated the validity of the major cultural frameworks (Hofstede 1980; Schwartz 1999; Trompenaars and Hampden-Turner 1997) as applied in a new context, i.e. to understand the determinants of pro-environmental attitudes in tourism. To-date, national culture has largely been excluded from analysis of the multiple drivers of (more) responsible consumer choice in tourism (Kim and Filimonau 2017). The main contribution of this study is thus in that it has exemplified empirically how certain, environment-orientated

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dimensions/value orientations of national culture could aid in predicting pro-environmental attitudes and subsequent pro-environmental behavioural intentions of tourists. Poland was used as a proxy country for analysis given the foreseen importance of this country as a future tourist market, both in East-Central Europe and globally.

The explicit role of national culture as a determinant of pro-environmental attitudes in tourism can be observed in previous research where, however, its impact has not been testified empirically. Further, the comprehensive literature review conducted as part of this project has identified no studies that would utilise the cultural dimensions/value orientations proposed by Hofstede, Schwartz and Trompenaars and Hampden-Turner to capture the effect of national culture on pro-environmental attitudes and subsequent behavioural intentions of tourists. For instance, there have been seminal attempts to examine pro-environmental attitudes of tourists in the UK (Hares *et al.* 2010), Norway (Higham and Cohen 2011), New Zealand (Becken 2007) and Australia (Higham *et al.* 2016b) with low levels of public pro-environmental attitudes recorded. Similar to Poland, these countries are all individualistic and short-term orientated (Hofstede Centre 2017), which suggests that, aside from various internal and external determinants of pro-environmental attitudes in tourism, national culture may have had an important role to play and should have been elaborated upon in more detail in the above seminal studies. This also holds true for the study by Dickinson *et al.* (2013) which has examined public perceptions of the environmental impacts of tourism in Poland but excluded the element of national culture from analysis. Dickinson *et al.* (2013) have found external factors, such as social norms and peer pressure, to be the prime barriers towards the adoption of voluntary, pro-environmental behavioural changes among Polish tourists while the outcome of this study suggests that internal factors, such as national culture, may have imposed an equally important barrier. To gain a more holistic and accurate account of the determinants of more responsible consumer choice in tourism and to develop more

effective policy-making and managerial interventions to mitigate the negative repercussions of tourist behaviour on the environment, it is thus important to execute the analysis of both internal and external drivers of tourist attitudes and behavioural intentions.

This study has thus reinforced evidence as to why national culture should become an integral element of tourism research (Crotts and Erdmann 2002), especially when striving to understand the drivers of pro-environmental attitudes and behavioural intentions among tourists. National culture should also be accounted for by policy-makers and managers when designing environmental mitigation measures in tourism. For example, as shown in this study, Polish tourists tend to delegate environmental mitigation to other tourism stakeholders, i.e. national government and tourism businesses. This may be partially attributed to the strong Individualism trait, where personal interests are prioritised over the 'common commodity', which has been found pronounced for the Polish culture. This may suggest that, due to the national cultural background, voluntary behavioural changes are unlikely to become an effective, stand-alone environmental mitigation instrument in Polish tourism in the short-term. Education as a cultural representation of any nation can be utilised to gradually enhance pro-environmental attitudes of Polish tourists, but is only considered feasible as a long-term solution (Becken 2004). Hence, short-term mitigation can only be achieved in Polish tourism when voluntary behavioural changes are supplemented with those environmental mitigation measures that require little individual effort, such as technological innovations and regulatory interventions. This is confirmed by Dickinson *et al.* (2013) whose study on pro-environmental perceptions of tourists was conducted in the Polish context but excluded the effect of national culture from analysis. Importantly, this finding holds true for other geographies, where the traits of Individualism are strong, and where tourists have failed to consider environmental mitigation as an individual responsibility, but to rather assign it to

various external actors (Higham *et al.* 2016b; McKercher *et al*. 2010; Reis and Higham 2017).

Lastly, this study found that, next to national culture, the level of public environmental knowledge in Poland exerts a positive effect on pro-environmental attitudes and pro-environmental behavioural intentions in tourism. This finding contradicts some of previous research (see, for example, Becken 2007; Cohen and Higham 2011; Hares *et al.* 2010) as it indicates correlation between better knowledge of the environmental impacts of tourism and more environmentally responsible behavioural intentions among Polish tourists. It should however be noticed that most of the previous research on the inter-linkages between public environmental knowledge and pro-environmental behaviour in tourism has been conducted in the context of developed countries and through a lens of the qualitative research paradigm. Qualitative research enables more in-depth investigation of such complex societal phenomena in established consumption markets as public pro-environmental attitudes and may have therefore revealed additional, internal and external, factors that have potential to offset the profound effect of national culture on shaping pro-environmental attitudes of tourists.

Conclusions

Although the important role of national culture in driving consumer attitudes and subsequent behavioural intentions in tourism has long been recognised, there is a paucity of empirical research aiming to demonstrate the effect of national culture on tourist attitudes and behaviour in real life settings. The scope of existing studies has been restricted, with such important areas as pro-environmental consumption patterns of tourists being completely overlooked. The geographical scale of research has further been limited and the emerging tourist markets have been excluded from analysis.

This study contributed to knowledge by exploring how specific, environment-related dimensions/value orientations of major cultural frameworks influence pro-environmental attitudes and behavioural intentions of Polish tourists. It demonstrated the mediating effect of national culture on shaping consumer attitudes to tourism's environmental impacts alongside potential mitigation approaches, thus extending evidence of the applicability of major cultural theories to the domain of sustainable tourism. Correlation was found between the main cultural traits of Polish tourists and the levels of public environmental interest and potential engagement in environmental mitigation practices in tourism, thus underlining a number of policy-making, managerial and research implications.

In particular, the outcome of this study indicated that, in a short-term perspective, tourism policy-makers and practitioners in Poland should aim at developing mitigation measures with a lesser focus on voluntary behavioural changes. The pronounced traits of Individualism and Short-term orientation in the Polish culture suggest low probability of the prompt adoption of voluntary changes in individual consumer behaviour. Assigning responsibility to external stakeholders is seen by Polish tourists as a more feasible means to reduce the environmental significance of tourism. Educating Polish consumers about the environmental repercussions of their travel decisions has potential to enhance pro-environmental attitudes of tourists, thus leading to more responsible behavioural intentions in the future. Specifically, the educational interventions can strive to enhance the Harmony trait of the Polish culture and, yet, the tangible effect of these interventions is most likely to be observed in a long-term perspective given the lengthy and complex process of national culture's transformations.

The main limitation of the study's outcome is in that it only applies to the analysis of tourists representing countries with fairly homogeneous national culture compositions, such as Poland. The growth in migration at a global scale suggests that the cultural background of

tourists can no longer be defined on the basis of their source country. It is therefore important to understand the cultural background of tourists, rather than a country of their origin, prior to replicating this study in other consumption contexts.

Future research should also aim at strengthening empirical evidence collected in the current study on the role of national culture in shaping pro-environmental attitudes in tourism. Explorations of other national cultures should be undertaken in various political and socio-economic contexts and a cross-cultural analysis should be performed to validate the outcome of this exploratory project. The effect of specific cultural traits (for example, Individualism/Collectivism) on pro-environmental tourist attitudes should be an object of more in-depth examination while the feasibility of integrating other cultural frameworks in analysis, especially those with less pronounced environmental dimensions (such as Lewis 2006), should be carefully investigated. Given the broad nature of the factors obtained in the exploratory factor analysis of this study, more specific and narrower dimensions/value orientations of natural culture should be adopted when studying its role in shaping pro-environmental tourist attitudes and subsequent behaviour. For example, Singelis *et al.* (1995) differentiate between the vertical, i.e. emphasising personal preference for societal hierarchy, and horizontal, i.e. valuing equality in societies, traits of Individualism/Collectivism. This distinction in the measurement of the effect of national culture is more specific and may therefore contribute to better understanding of how these cultural traits affect pro-environmental attitudes and behavioural intentions in tourism. This is because such a horizontal versus vertical distinction is better suited conceptually to examine the role of personal values, such as power, achievement, self-direction and/or conformity. Likewise, the use of the bi-dimensional conceptualisation of Short/Long term orientation as proposed by Bearden *et al.* (2006) would enable future studies to gain an in-depth insight into how tourists from Long-term orientated national cultures can potentially exhibit more pronounced pro-

environmental attitudes. Better understanding of the effect exerted by these more specific / narrower dimensions of national culture should be undertaken via confirmatory, rather than exploratory, research.

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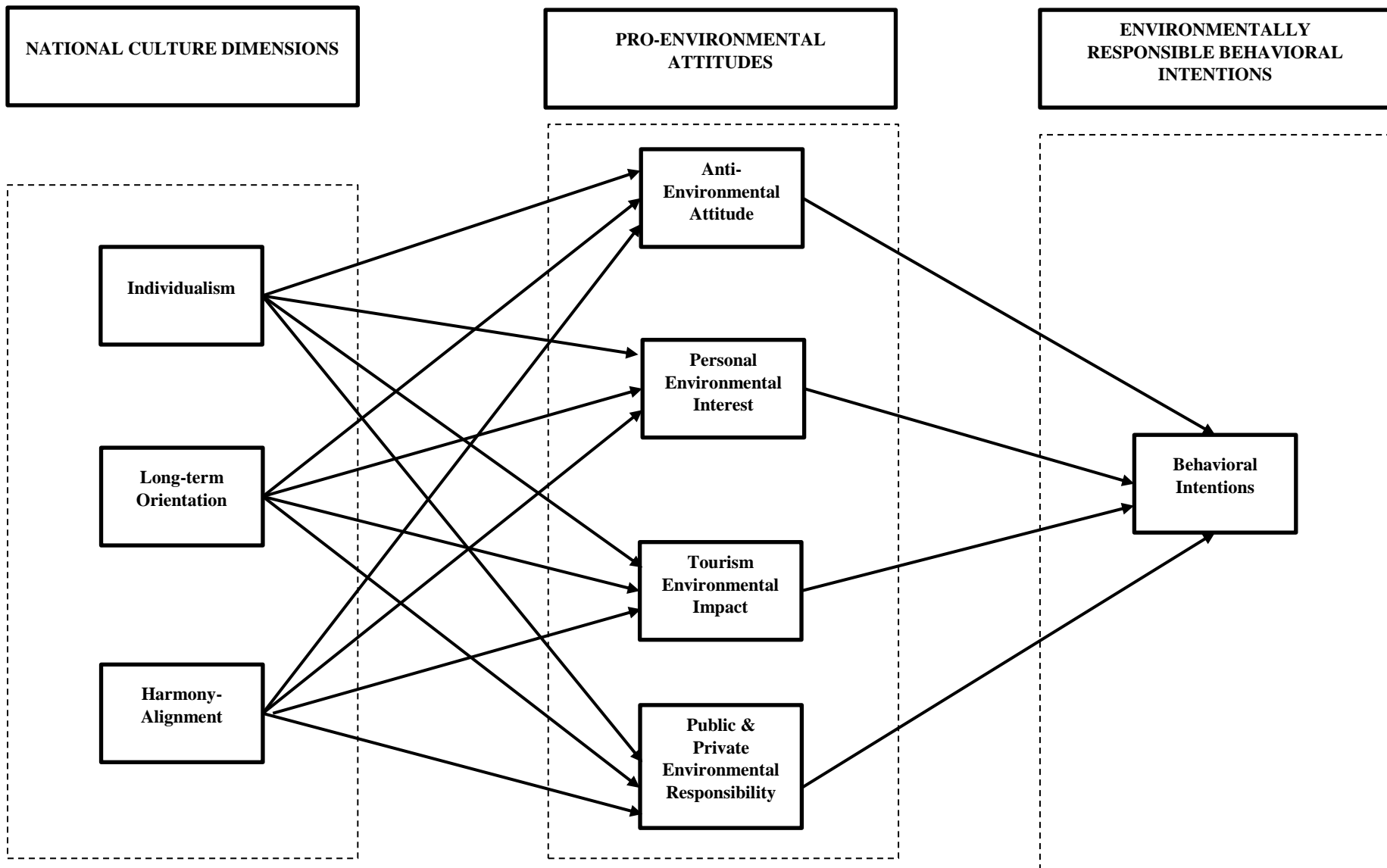
Figure 1. Conceptual model
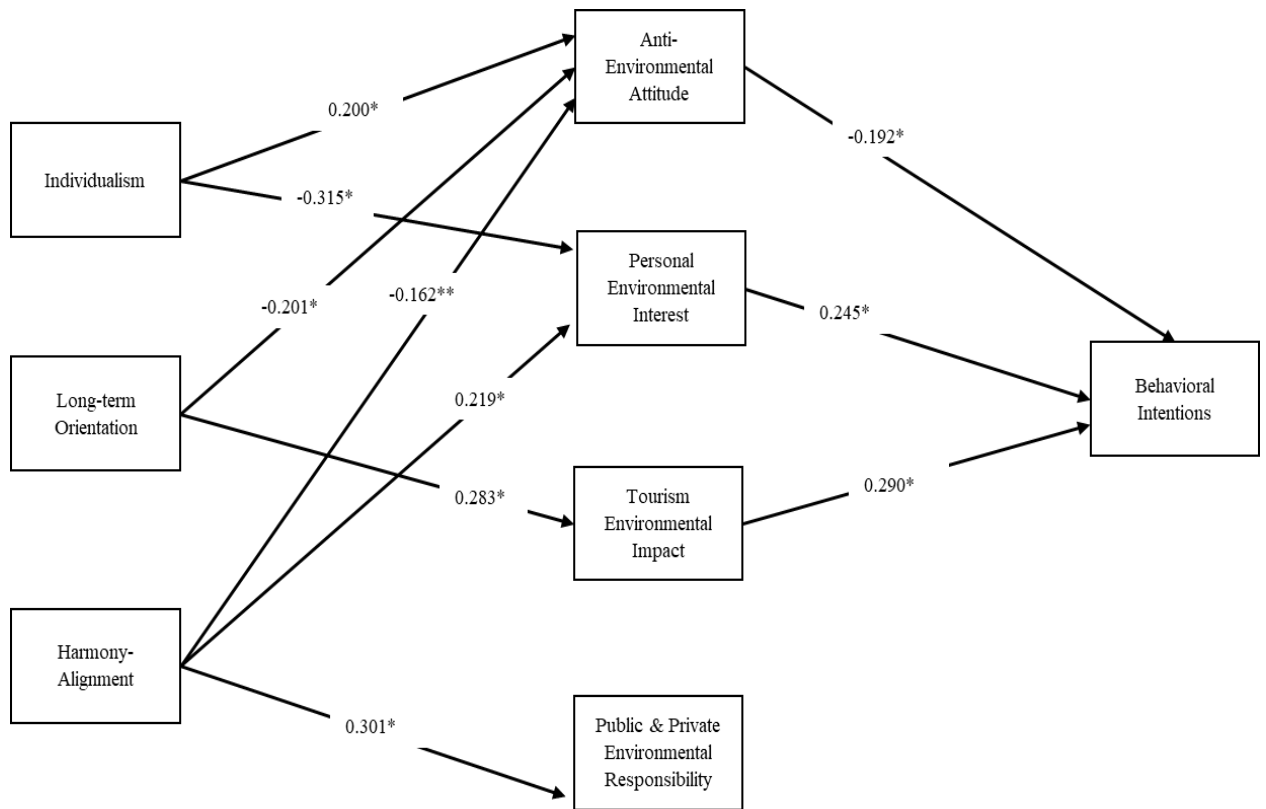
Note: * = p<0.001; ** = p<0.01.

Figure 2. Outcome of structural modeling

Table 1. Sample profile (n=454)

Gender		Personal salary	
Male	47.8%	Below nation's average	47.1%
Female	52.2%	Above nation's average	17.8%
		Refused / Prefer not to say	35.1%
Level of education		**Occupation**	
		Retired	16.1%
Secondary school	35.5%	Student	21.8%
Technical education	15.2%	Unemployed	5.5%
University and above	43.4%	Full-Time employed	45.2%
No formal education / Other	5.9%	Part-Time employed	7.3%
		Other	4.1%
Age		**Travelled abroad with holidaying purposes** (in the last 3 years)	
		Yes	76.4%
16-24	22.0%	No	23.6%
25-34	18.9%	**Frequency of travelling** (per year)	
35-44	16.3%		
45-54	18.7%		
55-64	12.3%	Average	1.79
over 65	11.8%	Standard Deviation	2.54

Table 2**.** Environment-related cultural dimensions/value orientations for Poland. Source:

Adopted from Hofstede Centre (2017); Schwartz (2006)

Cultural dimension	Score for Poland	Meaning	Interpretation: Pro-environmental attitudes are…
Individualism/Collectivism	60 out of 100	Individualistic society	Low
Long-term/Short-term orientation	38 out of 100	Short-term oriented society	Low
Harmony/Mastery	Circa 0.83	On the Harmony side	High

Table 3. Exploratory factor analysis (EFA) for pro-environmental attitudes of Polish tourists

| | Items factorial loadings | | | | | |
Items	Factor 1	Factor 2	Factor 3	Factor 4	Arithmetic mean	Standard Deviation
Factor 1. Anti-Environmental Attitudes (AEA)					**3.11**	**0.85**
Climate change is a natural phenomenon; people play no role in its intensifying	.723				3.14	1.26
The environment has enough capacity to restore itself	.694				3.10	1.17
Climate change is not my personal responsibility	.667				2.90	1.23
People worry about climate change too much	.643				3.31	1.17
Factor 2. Personal Environmental Interest (PEI)					**2.30**	**0.81**
I try to reduce my impact on the environment in my day-to-day behaviour		.788			2.47	1.03
I understand the notion of climate change		.664			2.15	1.01
Factor 3. Tourism Environmental Impact (TEI)					**3.25**	**0.67**
International tourism imposes significant impacts on climate change			.642		3.19	0.97
Within tourism, air travel is the main contributor to climate change			.734		3.37	0.96
Within tourism, hotels make the main contribution to climate change			.765		3.52	0.88

I am aware of the climate implications of my holidays			.601		2.94	1.11
Factor 4. Public and Private Environmental Responsibility (PPER)					**2.24**	**0.93**
National governments should be held responsible for fighting climate change				.678	2.14	1.09
Commercial enterprises are the primary contributors to the problem of climate change and hence they should be held responsible for fighting its negative implications				.833	2.35	1.11
KMO = 0.775; Bartlett's sphericity test = 949.08 (Sig. <0.000); Total Explained Variance = 54.19%						

Table 4. Descriptive statistics for the national culture dimensions and behavioral intentions as related to pro-environmental attitudes of tourists

CULTURAL DIMENSIONS		Average	Standard Deviation
INDIVIDUALISM/COLLECTIVISM (higher scores indicate stronger Individualism).			
IND1	Nature is our common home and it is my personal responsibility to look well after it *(reversed item)*	1.87	0.82
IND2	I am more concerned about the effect climate change imposes on myself rather than on this planet in general	2.31	1.04
IND3	Environmental problems worry me little as I am just unable to control them	3.26	1.09
IND4	I am more concerned about the negative short-term effect of climate change on me personally, than about the negative long-term effect it imposes on the society as a whole	3.14	1.06
SHORT/LONG TERM ORIENTATION (higher scores indicate stronger Long-Term Orientation)			
LTOR1	Climate change will have a lot of long-term negative effects while my life is too short to worry about it *(reversed item)*	3.02	1.17
LTOR2	Environmental impacts will be the responsibility of future generations and I am worried about it	2.31	1.04
HARMONY/MASTERY (higher levels scores more Harmony-Aligned Culture)			
HARM1	Humans are masters of their own destiny and they have the right to do whatever they want with nature as long as this can help them achieve their goals *(reversed item)*	3.83	1.13
HARM2	The environment is precious as this is where we live and we should do as much as we can to minimize our negative impacts on it	1.90	0.82
HARM3	We have reached the stage in our development when the environment should be governed and controlled by the humans *(reversed item)*	2.50	1.03

HARM4	Although the human civilization has become sophisticated enough so that it is now able to control nature, the environment will always fight back	2.39	0.94
TOURIST BEHAVIOURAL INTENTIONS (TBI) (higher scores indicate stronger willingness to modify tourist behavior)			
BI1	In principle, I would consider changing my travel behavior to make it more climate-friendly	2.87	1.10
BI2	I do not want to change my travel behavior to make it more climate-friendly simply because my personal efforts to fight the problem of climate change are too small to make a noticeable difference (*reversed item*)	2.96	1.09

Table 5. Results of the final measurement model.

Construct	Indicator	Standardised Loading	Composite Reliability Index (CRI)	Average Variance Extracted (AVE)
Individualism IND	IND1	0.738*	0.760	0.516
	IND2	0.624*		
	IND3	0.784*		
Long-term Orientation LTOR	LTOR1	0.793*	0.779	0.638
	LTOR2	0.804*		
Harmony-Aligned HARM	HARM1	0.872*	0.863	0.758
	HARM2	0.870*		
Anti-Environmental Attitudes AEA	AEA1	0.667*	0.801	0.501
	AEA2	0.753*		
	AEA3	0.713*		
	AEA4	0.699*		
Personal Environmental Interest PEI	PEI1	0.829*	0.780	0.640
	PEI2	0.770*		
Tourism Environmental Impact TEI	TEI1	0.721*	0.798	0.497
	TEI2	0.708*		
	TEI3	0.715*		
	TEI4	0.675*		
Public and Private Environmental Responsibility PPER	PPER1	0.867*	0.828	0.707
	PPER2	0.814*		
Tourist Behavioral Intentions TBI	TBI1	0.856*	0.800	0.668
	TBI2	0.776*		

Note: * = p<0.001.

Table 6. Discriminant validity of the final measurement model.

Construct	1	2	3	4	5	6	7	8
1. IND	0.719							
2. LTOR	-0.585	0.799						
3. HARM	-0.638	0.525	0.871					
4. AEA	0.420	-0.403	-0.395	0.708				
5. PEI	-0.488	0.356	0.449	-0.275	0.800			
6. TEI	-0.234	0.307	0.187	-0.248	0.141	0.705		
7. PPER	-0.229	0.233	0.337	-0.374	0.290	0.274	0.841	
8. TBI	-0.491	0.532	0.428	-0.340	0.341	0.366	0.221	0.817

Note 1: Values in the diagonal indicate the squared root of the AVE values;
values above the diagonal represent the latent variables' correlations.

Note 2: See Table 1.

Table 7. Results of structural modeling

Structural paths	β	t-value
Cultural dimensions → Pro-environmental attitudes		
Individualism → Anti-environmental attitude	0.200	3.486*
Individualism → Personal environmental interest	-0.315	4.875*
Individualism → Tourism environmental impact	-0.084	1.200
Individualism → Public & private environmental responsibility	0.010	0.170
Long-term orientation → Anti-environmental attitude	-0.201	3.687*
Long-term orientation → Personal environmental interest	0.057	0.976
Long-term orientation → Tourism environmental impact	0.283	4.872*
Long-term orientation → Public & private environmental responsibility	0.081	1.239
Harmony-Aligned → Anti-environmental attitude	-0.162	2.911**
Harmony-Aligned → Personal environmental interest	0.219	3.532*
Harmony-Aligned→ Tourism environmental impact	-0.003	0.055
Harmony-Aligned → Public & private environmental responsibility	0.301	4.586*
Pro-environmental attitudes → Behavioral intentions		
Anti-environmental attitude → Behavioral intentions	-0.192	3.928*
Personal environmental interest → Behavioral intentions	0.245	5.163*
Tourism environmental impact → Behavioral intentions	0.290	5.903*
Public & private environmental responsibility → Behavioral intentions	-0.003	0.068
R^2 (AEA) = 22.9%; R^2 (PEI) = 27.2% ; R^2 (TEI) = 11.4%; R^2 (PPER) = 11.8%; R^2 (BI) = 25.8%		
Q^2 (AEA) = 0.107; Q^2 (PEI) = 0.160 ; Q^2 (TEI) = 0.049; Q^2 (PPER) = 0.073; Q^2 (BI) = 0.154		

Note 1: See Table 1.

Note 2: * = p<0.001; ** = p<0.01.