The role of generativity and attitudes on employees home and workplace water and energy saving behaviours

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HIGHLIGHTS

- Examines links between generativity and environmental attitudes and behaviour.
- Focuses on both energy saving and water saving, at home and in the workplace.
- Contributes to the CSR literature, focussing on the Iranian hospitality industry.
- Highlights implications for designing workplace environmental interventions.

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ABSTRACT

Building on prior studies in environmental behaviour and employee micro level CSR, this paper examines the role of generativity, encompassing thoughts towards the well-being of future generations and contribution to future society, and specific environmental attitudes on environmental behaviour in the home and workplace. The paper examines the relationships between these variables, including assessing spillover effects between home and workplace environmental behaviour via a quantitative survey methodology, within the hospitality industry in Iran. Analysis using PLS found generativity to be important in determining attitudes and, in turn, environmental behaviour both in the workplace and the home. However, a spillover effect between home and workplace behaviours was not found. Thus, this research adds to the limited literature on CSR at the micro employee level in tourism studies and highlights the effects of generativity on home and workplace behaviours, as well as potential directions for internal social marketing campaigns within tourism organisations.

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1. Introduction

The study of pro-environmental behaviour, that is "behaviour that harms the environment as little as possible or even benefits the environment" (Steg & Vlek, 2009, p. 309), has utilised a range of theories and models to describe and predict behaviour of individuals and communities. These studies have used an array of theories and models including operant conditioning, motivational, moral and value theories, theories of attitude, belief and intention,

theories of emotion and affect to predict both environmental behaviour and attitudes (Vinning & Ebreo, 2002). Steg and Vlek (2009) in their review of the area note that it is not yet clear which of the perspectives, theories and models is most useful in which situation and for which behaviour. They also recommend that contextual issues must also be taken into account, when deciding this.

Although a number of individual and organisational factors and their effects on environmental behaviour have been tested, this paper seeks primarily to understand the role of generativity in pro-environmental attitudes and behaviours, both in the home and the workplace. Generativity is "a resource encouraging people toward the public good, maintaining continuity from one generation to the next" (Urien & Kilbourne, 2011, p. 73), which has previously been

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applied to eco-consumption behaviour and intentions (Urien & Kilbourne, 2011) but has not, to the authors knowledge, been applied to broader environmental behaviours such as resource saving behaviours in the home and the workplace, particularly in the tourism industry. However, generativity is a variable which should be included within tourism research due to the inheritance (Chhabra, 2009; Garrod & Fyall, 2000) and intergenerational (Jepson, 2011; Nasser, 2003) aspects of both tourism and sustainability. Hence, the first objective of this study is to examine the effect of generativity on environmental attitudes and behaviours in the home and in the workplace.

In addition, the majority of work examining environmental behaviour has focused on home behaviour, consumption behaviour or the role of communities while comparatively little work has been done within organisations (specifically focusing on employee environmental behaviour) or looked at the potential spillover effects between the home and the workplace. Although initial work within organisations assumed that employee environmental behaviour would be similar to home environmental behaviour, Andersson, Shivarajan, and Blau (2005, p. 302) highlight that the "determinants of pro-environmental behaviour within organizations are different than the determinants of other types of pro-environmental behaviour". In general, employees do not have the same financial interest in the workplace as they do at home. Employees are not typically concerned with their energy usage and they have little context for how much energy they use because devices are often shared by multiple employees (Carrico & Riemer, 2011; Siero, Bakker, Dekker, & van den Burg, 1996). Only a few studies have made a direct comparison between home and workplace behaviour suggesting that overall experience of recycling in the home has a positive effect on recycling in the workplace (Marans & Lee, 1993) and that energy saving behaviour at home has a positive effect on energy saving behaviour at work (Manika, Gregory-Smith, Wells, & Graham, 2014, 2015). Manika et al. (2015) also suggest that this spillover effect may be greater for women than men. Hence, the second objective of this study is to address more comprehensively the links between home and workplace behaviour, and attitudes about environmental resource saving behaviours. This will contribute to extending the prior literature.

Employee environmental behaviour has largely been studied in the context of corporate social responsibility (CSR). Within tourism CSR, research has focused across a wide range of sectors from museums and heritage (Edwards, 2007) to tour operators and airlines industry (Coles, Fenclova, & Dinan, 2011; Dodds & Kuehnel, 2010), although generally tourism CSR research is considered to be at an early, undeveloped stage (Coles et al., 2011). The largest focus however has been within the accommodation and hospitality industry (e.g., Ayuso, 2006; Bohdanowicz, 2007; Bohdanowicz, Zientara, & Novotna, 2011; Knowles, Macmillan, Palmer, Grabowski, & Hashimoto, 1999; Tsai, Tsang, & Cheng, 2012). This focus may be because hotels are suggested to produce higher than average consumption of energy and water than other commercial buildings, and therefore have a larger environmental impact (Bohdanowicz et al., 2011; Gossling, 2015). Additionally, within both wider and tourism specific CSR, research has largely focused on institutional (e.g., laws, standards) and organisational (macro research on boards and management groups) aspects, while ignoring those aspects at the individual or micro level, such as the role of internal stakeholders (e.g., employees; Chun, Shin, Choi, & Kim, 2013; Hansen, Dunford, Boss, Boss, & Angermeier, 2011). While tourism CSR research has explored the micro level in connection to tourists' opinions, the role of employee behaviours is largely unknown with only a few exceptions (Chou, 2014; Deery, Jago, & Stewart, 2007; Wells, Manika, Gregory-Smith, Taheri, &

McCowlen, 2015). This knowledge gap exists despite employees being the core target for internal behaviour change CSR initiatives, particularly in the services industry due to the close relationship between employees and consumers (Chou, 2014; Coles et al., 2011; Wells et al., 2015). Therefore, the third objective of this research is to further understand employee environmental behaviour and the links between specific environmental attitudes and behaviours.

On the basis of these gaps in the literature, this paper seeks to examine the links between home and workplace energy and water saving behaviours, within the under-researched tourism context, and to examine the influence of generativity on these relationships. Energy and water saving behaviours have been chosen as past research (Bohdanowicz et al., 2011; Gossling, 2015) highlighted these as the most resource-consuming behaviours and with large negative environmental impact in the hotel industry and are often the focus of social marketing interventions within hotels (see for example: www.greenhotelier.org/our-themes/energy/uk-hotels-making-huge-savings-on-energy-and-water/). They are also two types of resources that employees are using at home on a daily basis and, thus, spillover between the two settings could be examined. More specifically, the research examines how generativity influences employees' attitudes towards energy and water resource saving in the home and at the workplace as well as their energy and water resource saving behaviour both at home and in the workplace. Such relationships are important for hospitality organisations interested in developing their corporate social responsibility with action at the employee level and provide valuable knowledge to those wishing to develop internal social marketing campaigns directed to employees. The paper is organised into four main sections. Firstly, the literature on generativity, attitudes towards the environment and environmental behaviours are reviewed. Secondly, the paper presents hypotheses informed by the literature review. Thirdly, the methodology and analysis are presented exploring the influence of generativity on environmental friendly attitudes and behaviour in the home and at the workplace. Fourthly, the paper discusses the results and, finally, the paper presents a number of managerial implications, limitations and opportunities for further research.

2. Literature review

2.1. Generativity and environmental behaviour

Generativity is an important element of healthy adult development and is a "concern for and commitment to the well-being of future generations [and] may be expressed in teaching, mentoring, volunteer work, charitable activities, religious involvements and political activities" (McAdams & Logan, 2004, p. 16). McAdams and de St. Aubin (1992) conceive generativity as seven interrelated features: cultural demand, inner desire, generative concern, belief in the species, commitment, generative action, and person narration each of which is interlinked (for example generative action is motivated by cultural demand or inner desire). Generativity has been linked to increased social involvement (Hart, MacAdams, Hirsch, & Bauer, 2001), increased political consciousness/activity (Huta & Zuroff, 2007; Peterson, Smirles, & Wentworth, 1997; Peterson & Stewart, 1996), all forms of political expression (Peterson et al., 1997), volunteering (Agostinho & Paço, 2012) and social motives (Peterson & Stewart, 1993). It has also been studied alongside personality (Peterson et al., 1997) where individuals displaying higher levels of generativity scored highly on the Big Five factors of Extraversion and Conscientiousness and were open minded and interested in imaginative endeavours. Most recently it has been linked to consumer behaviour and in particular attitudes towards ads and products that are generatively positioned (Lacroix

& Jolibert, 2015).

Some researchers have started to explore the link between generativity and environmental concern/sustainability (Chan, 2009). Research highlights that two aspects of McAdams and de St. Aubin's (1992) conceptualisation, generative concern and generative action, may be most important with generative concern emerging as particularly important (Alisat, 2015) across a range of study types, age groups and cultures (Matsuba et al., 2012; Urien & Kilbourne, 2011; Warburton & Gooch, 2007). As environmentalism and sustainability is a future oriented long-term perspective and an intergenerational, or trans-generational issue where decisions regarding the environment now will have an effect on later generations, generative concern is expected to be an important motivating variable for environmental action (Urien & Kilbourne, 2011). Particularly, studies show generativity plays an important role in environmental commitment (Chan, 2009), environmental activism (Alisat, 2015), environmental engagement and attitudes (Matsuba et al., 2012), and generative concerns are important to conservation volunteers (Guiney and Oberhauser, 2009). Urien and Kilbourne (2011) demonstrate a link between higher levels of generativity and higher eco-friendly intentions and more environmentally responsible consumption behaviours but only when self-enhancement is high.

An overall positive association between generativity and environmental values and behaviour has been found across studies but there is further scope to explore the concept of generativity and its relation to a wider range of pro-environmental behaviours, such as in the workplace. Additionally, this association may be even stronger within tourism where intergenerational issues such as "generativity or guiding the next generation" (Schänzel, 2013, p. 3) are an important component (Jepson, 2011; Nasser, 2003).

2.2. Attitudes towards environmental friendly behaviour in the home and workplace

Attitudes have been a popular focus within the study of pro-environmental behaviour generally as well as in studies of employee environmental behaviour. Studies have largely focused on general attitudes toward the environment (Andersson et al., 2005; Humphrey, Bord, Hammond, & Mann, 1977; Scherbaum, Popovich, & Finlinson, 2008; Wehrmeyer & McNeil, 2000). However, some authors suggest that the relations between general environmental concern and behaviour are weak (Schultz, Oskamp, & Mainieri, 1995) and multiple authors, building on suggestions from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and/or the Theory of Planned Behaviour (TPB) (Ajzen, 1991), have highlighted the need for attitudes and behaviours to be measured at the same level of specificity. Therefore, attitudes specifically towards the behaviour at hand (attitude towards the act) have been found at times to be more predictive of both behaviour and behavioural intentions, than general attitudes. Prior studies have used specific attitudes towards a behaviour (Lee, De Young, & Marans, 1995; Siero et al., 1996) and some studies have also used both general and specific attitudes (Gregory-Smith, Wells, Manika, & Graham, 2015; Marans & Lee, 1993; Tudor, Barr, & Gilg, 2008), although few detailed comparisons have been made between these two attitudinal perspectives. One study examined water conservation behaviour in the home, noting that specific behaviour-related attitudes outperform generalised attitudes in predicting energy and water consumption behaviour (Dascher, Kang, & Hustvedt, 2014). In addition, Vinning and Ebreo (2002) suggest that the different attitudinal foci (general versus specific) may explain the different and inconclusive results observed in a range of studies and may, therefore, play a part in studies of employee environmental behaviour where there has been mixed support for attitudes as a predictor of pro-environmental behaviour in the workplace (Lo, Peters, & Kok, 2012; Marans & Lee, 1993; Tudor, Barr, & Gilg, 2007; Tudor et al., 2008).

Given the aim of this study is to compare between home and workplace attitudes and behaviours, the focus will be on the measurement of specific attitudes (i.e., for home and workplace environmental behaviour respectively) and the extant research, highlighted above, suggests that attitudes will affect environmental behaviours, both in the home and the workplace. In addition as highlighted, few studies have compared between and examined the relationship between home and workplace environmental attitudes so this paper fills this additional gap in the literature.

While generativity has been shown to positively affect environmental attitudes, the attitudinal variables have been largely measured at a broad level i.e., encompassing environmental concern (for example use of the New Ecological Paradigm Scale (NEP), Dunlap, Van Liere, Mertig, & Jones, 2000 in Matsuba et al. (2012)). Therefore, there is scope to assess its effect on more specific attitudes focused on particular environmental behaviours. Thus, it is expected that generativity will affect general environmental attitudes and concern (Matsuba et al., 2012), and that more specific attitudes, focused on the workplace and the home, will also be influenced by the generativity construct. Thus:

H1. Generativity (GEN) positively affects employee attitudes to water and energy saving at HOME (AtHOME).

and this is expected to be the case for both home and work attitudes:

H2. Generativity (GEN) positively affects employee attitudes on water and energy saving at WORK (AtWORK).

Moreover, prior research suggests that behaviour in the home can spillover into the workplace. For example, Marans and Lee (1993), Tudor et al. (2008) and the review by Lo et al. (2012) found that environmental management practices practised in the home strongly correlated with sustainable waste management behaviour at work. It is, therefore, expected that this spillover effect will also manifest itself in attitudes towards environmental behaviour in the home and the workplace. Thus:

H3. Employee attitudes to water and energy saving at HOME (AtHOME) positively affect employee attitudes to water and energy saving at WORK (AtWORK).

2.3. Environmental friendly behaviour in the home and workplace

Both Vinning and Ebreo (2002) and Steg and Vlek (2009) highlight the multiple behavioural foci and measurements that have been utilised in general, home and employee environmental behaviour research. While most behaviours have been studied within the home, including recycling (Oskamp et al., 1991), energy (Barr, Gilg, & Ford, 2005), transport/commuting (Gardner & Abraham, 2010) and environmental responsible consumption (Stone, Barnes, & Montgomery, 1995) within the relatively new area of employee environmental behaviour, a smaller range of behaviours have been studied. CSR initiatives in organisations have become increasing important focusing at all levels but research has focused on the macro level of CSR (research at board and management level) while focusing less at the micro (individual stakeholders such as employees) level (Manika, Wells, Gregory-Smith & Gentry, 2014). However, the micro level is of importance because it is the behaviour change of individual employees that will often allow organisations to meet their CSR objectives. Within organisations, studies have focused mainly on waste management/

recycling (Ludwig, Gray, & Rowell, 1998; Marans & Lee, 1993; McDonald, 2011; Tudor et al., 2008), followed by some looking at climate control, lights (Lo et al., 2012), driving behaviour (Siero, Boon, Kok, & Siero, 1989), computers, lights and fan usage (Scherbaum et al., 2008) and energy use (Carrico & Riemer, 2011) amongst others. The majority of studies have focused on a single behaviour (e.g., recycling) while only a minority have focused on multiple behaviours.

While energy behaviours have been a popular focus both in the home (Barr et al., 2005) and in the workplace (Carrico & Riemer, 2011) water conservation behaviour has gained little attention and has only recently become a focus for research. Research has explored energy behaviours in terms of energy saving strategies such as technical improvements and different use of products (Poortinga, Steg, Vlek, & Wiersma, 2003), home energy monitors (van Dam, Bakker, & van Hal, 2010), the provision of energy feedback (Fischer, 2008) and in the workplace printing and computing behaviour (Gregory-Smith et al., 2015). The newer focus on water saving acknowledges that individuals, households and organisations are responding to unpredictable water supply and water shortages (Dascher et al., 2014; Lowe, Lynch, & Lowe, 2014), that a range of behaviours including turning off taps, using only full loads of washing and installing water saving devices (Gilg & Barr, 2006) reflect water saving behaviours and there have been increasing calls for further research into the area of water consumption (Kotler, 2011). In the home context, a number of studies have suggested an influence of perceived consumer effectiveness (PCE), knowledge, attitudes social norms, perceptions of the water company, moral obligation and behavioural intentions on water conservation behaviours (Dascher et al., 2014; Lowe et al., 2014; Lowe, Lynch, & Lowe, 2015). Lowe et al. (2015) note, however, that consistent with prior TPB research attitudes have the greatest effect on intentions to consume less water.

Nevertheless, the role of employees in water conservation has not, to the authors' knowledge, been studied specifically. Ganda and Ngwakwe (2014) studied water efficacy practices in South African banks but did not examine employee behaviour specifically. Rather, they focused on the role of water conservation within broader macro CSR practices at the organisation level. However, water conservation (as well as the conservation of other resources including energy) is of particular interest in the hotel industry. As noted above, hotels are expected to have a higher than average consumption of energy and water and higher levels of water consumption than other commercial buildings and, therefore, have a larger impact from an ecological perspective (Bohdanowicz et al., 2011; Gossling, 2015). Nonetheless, research suggests that changes in water consumption practices can be difficult in the home because of household structure, looking after young children and the cost of water efficient devices (Lowe et al., 2014). Within the workplace different barriers are likely to play a role, and the need for high quality service standards in hotels is likely to be a key determinant of water use practices.

In this paper, water and energy saving attitudes are treated as one combined measure of attitudes and as a combined measure of pro-environmental behaviour. While the literature provides inconclusive evidence as to whether there are spillover effects or correlations between behaviours or antecedents of each (Thørgersen & Ölander, 2003), it is suggested that, except in cases where different environmental behaviours are substitutes for one another, the desire to behave consistently should lead to environmental behaviours being positively correlated (Thørgersen, 2004). Thørgersen (2004) suggests this may not be the case where behaviours are not seen as similar or closely associated. However, as both water saving and energy saving behaviours are similar resource saving behaviours, they have been considered together in this study.

As noted earlier, generativity is also expected to be a potential motivator of both environmental attitudes (as noted previously) and behaviour (Matsuba et al., 2012) and this expected to have an influence on energy and water saving behaviour in the home and at the workplace. Thus:

H4. Generativity (GEN) positively affects employee water and energy saving behaviour at HOME (BehHOME).

H5. Generativity (GEN) positively affects employee water and energy saving behaviour at WORK (BehWORK).

Additionally, as noted above, attitudes specific to behaviours will have an influence on environmental behaviours both at home and in the workplace and Chun et al. (2013) note that attitudes are often a key indicator of employee level CSR behaviour. Thus:

H6. Employee attitudes to water and energy saving at HOME (AtHOME) positively affect employee water and energy saving behaviour at HOME (BehHOME).

H7. Employee attitudes to water and energy saving at HOME (AtHOME) positively affect water and energy saving behaviour at WORK (BehWORK).

H8. Employee attitudes to water and energy saving at WORK (AtWORK) positively affect employee water and energy saving behaviour at WORK (BehWORK).

In addition, prior research suggests that behaviour in the home can spillover into the workplace (Lo et al., 2012; Marans & Lee, 1993; Tudor et al., 2008). However, potential spillover effects have received little attention in the academic literature, although where studied, regardless of culture, a positive spillover effect has been found (For example, Marans and Lee (1993) found a spillover effect in Taiwan while Manika, Gregory-Smith, Wells, and Graham (2014, 2015) found a spillover effect in the UK). Therefore, this research seeks to add to this small body of research, by examining this relationship and it is expected that home environmental behaviours will have an effect on work environmental behaviours and that a spillover effect will occur. Thus:

H9. Employee water and energy saving behaviour at HOME (BehHOME) positively affects employee water and energy saving behaviour at WORK (BehWORK).

The hypotheses and relationships between variables are shown graphically in Fig. 1.

3. Methodology

3.1. Data collection and measures

This study explores the link between generativity and environmental friendly attitudes and behaviour in the home and
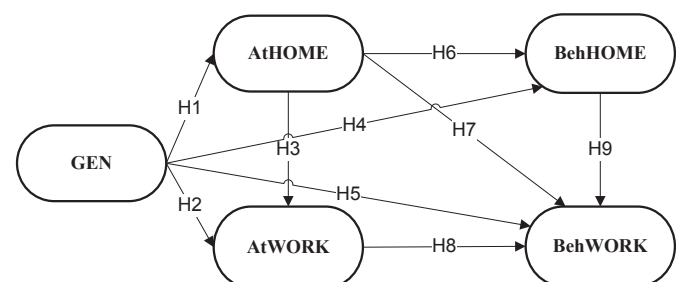

Fig. 1. Conceptual framework.

workplace. The majority of research on environmental attitudes and behaviour has been conducted in Europe and America and, therefore, this study also aims to fill a gap via data from a sample of full-time hotel employees in a developing economy, in this case Iran.

Both the culture and work environment in the hospitality industry in Iran is different compared to Europe and America (see also Karatepe, 2011; O'Gorman, McLellan, & Baum, 2007). In terms of culture, due to strong religious, moral and ethical principles, Iranians have a strong desire to help and interact with others and be responsible individuals both, generally, in the society and, particularly, in the work community (Rostami-Povey, 2010). Additionally, Iranians believe being a responsible person will impact others, who will in turn remember them and that this contribution will stay with them after they die (Rostami-Povey, 2010; Shafeie, Khedmati, & Pirouz, 2010). Moreover, the Iranian government has supported the integration of 'Islamic environmentalism' within its constitutional agenda (Amuli, 2007) requiring "environmental protection to be a public duty in order to safeguard the quality of life for both the present and future generations" (Parizanganeh, Lakhan, Yazdani, & Ahmad, 2011, p. 2836). Within the workplace there is considered to be less employee engagement (Karatepe, 2013), poor training, self-interested management and a collectivist, family-oriented and male-dominated working environment which gives priority to personal friendships (Karatepe, 2011, 2013; O'Gorman et al., 2007; Soltani & Liao, 2010; Tajeddini & Trueman, 2015). This highlights the need for a better understanding of environmental attitudes and behaviours in a non-Western setting such as Iran.

Judgmental sampling was employed in this study. This sampling technique has been noted as an effective way of collecting data where the aim is theoretical advancement rather than generalisation, and is used frequently in tourism and hospitality studies (Ariffin & Maghzi, 2012; Black, 2010; Gautam, 2012; Karatepe, Keshavarz, & Nejati, 2010). In the first step of the data collection, two major Iranian cities were selected, and within those cities all the hotels which are members of the Official Organisation for Tourism and Touring in Iran (ITTO) were identified. In the second step of the data collection, out of the list of hotels generated in step one, the hotels were further assessed on whether or not they allowed their employees to carry out water and energy saving behaviours, and they were also assessed on whether or not there was appropriate infrastructure for employees to engage in these environmentally friendly behaviours (e.g., access to energy controls). This criterion was important as the lack of ability to save water and energy and the lack of such an infrastructure that would allow employees to do so, would have led to biased responses, on the basis that the researched behaviours were not possible in the workplace. Based on step one and two of the sampling methodology and the aforementioned criteria, 5 hotels were selected for data collection. The management of these 5 hotels was contacted to ask permission for data to be collected from their employees.

Before the actual data collection took place, 20 employees were selected from these 5 hotels, to participate in a pre-testing stage, where the meaning and wording of the questionnaire were checked. These 20 staff did not take part in the actual data collection, which took place subsequently, and a total of 600 employees were surveyed. 447 questionnaires were returned constituting a 74 per cent response rate, which is acceptable based on Fowler (2002). The mean replacement technique was used to overcome 137 missing values across the dataset. Mean replacement or substitution "replaces the missing values for a variable with the mean value of that variable calculated from all valid responses" (Hair, Black, Babin, & Anderson, 2010, p. 53). This technique has the advantage of not changing the sample size and the sample mean of variables (Hair et al., 2010). 43.7% of the sample was 56 years old or older,

30.9% between 46 and 55 year old, and 25.4% between 18 and 45 years old. 47% of the respondents were male and 53% female.

The survey questions included demographic variables (age and gender) and multiple-item continuous scales. For the first set of questions measuring generativity (GEN), Urien and Kilbourne's (2011) reduced scale was used. Employee attitudes to water and energy saving at home (AtHOME) and at work (AtWORK) and employee water and energy saving behaviour at home (BehHOME) and at work (BehWORK) were adapted from energy measures used by Manika et al. (2015) and Gregory-Smith et al. (2015). Specific attitudes towards the behaviours rather than general environmental attitudes were used in this study in response to suggestions that attitudes and behaviours should be measured at the same level of specificity (Schultz et al., 1995). These continuous measures (see Table 1) were adapted to reflect the Iranian context, based on discussion with a native expert researcher in the area of hospitality and tourism. Respondents were asked to indicate their levels of agreement with each item on a seven-point Likert scale (1 – completely disagree, 7 – completely agree). Before the questionnaire was administered, a back-translation method was used to verify the projected meaning of the question categories as well as avoid any language misunderstandings or grammatical errors (Albayrak & Caber, 2015). The questionnaire was also checked by four (both local and academic) native Farsi speakers.

3.2. Common method variance (CMV)

As with all self-reported data, there is a risk of CMV caused by multiple sources (Liang, Saraf, Hu, & Xue, 2007; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To avoid this, the analysis followed several theoretical and statistical steps. First, previously validated constructs were used to reduce item ambiguity and biased responses. Second, the confidentiality of the questionnaire was assured for participants, which minimises social desirability bias. Third, in order to avoid biases in responses due to uncontrolled contextual conditions, the staff were asked to fill in questionnaires in different places within the hotels. Fourth, Harman's single-factor test was used to assess CMV by entering all the principal constructs into an exploratory factor analysis (Podsakoff et al., 2003). The results of the factor analysis showed eight factors with Eigenvalues greater than 1, explaining 71.739% of the total variance with the first factor accounting for only 35 percent of the total variance (i.e., less than 50% which did not explain most of the variance). Therefore, it appeared that the CMV was not biasing the results. These Eigenvalues, cumulative and communalities are reported in Appendix 1. Finally, following Liang et al.'s (2007) procedure, a common method factor was introduced to the structured model in partial least square (PLS). The average variance of indicators and method factor were calculated. The average variance explained by indicators was 58%, while the average method-based variance was 1.6%, yielding a ratio of 36:1. Hence, CMV was not a concern for this study.

4.. Results and analysis

PLS has gained importance in marketing and tourism research (Ashill & Jobber, 2014; Bryce, Curran, O'Gorman, & Taheri, 2015; Prayag & Hosany, 2014; Taheri, Jafari, & O'Gorman, 2014) and was chosen as the method of analysis for this study as it suits predictive application research for a variety of reasons. Firstly, it is preferable for the early stages of theory building as well as adding new construct(s) that have not received empirical attention previously (Hair, Hult, Ringle, & Sarstedt, 2014). This study examines the generativity concept, which is relatively new in tourism and marketing management studies. Secondly, it enforces less restrictive assumptions about normality (Alexander, MacLaren, O'Gorman, &

Table 1
Assessment of the measurement model and descriptive statistics.

Items	Mean	Skewness	Kurtosis	Loading	t-statistic	ρ_{cr}	AVE	α
Generativity (GEN)						.929	.567	.914
1. I try to pass along the knowledge I have gained through my experiences.	4.868	−.180	−.480	.710	18.122			
2. I do not feel that other people need me.	4.543	−.140	−.503	.713	15.403			
3. I feel as though I have made a difference to many people.	4.922	−.194	−.553	.742	30.296			
4. I have made and created things that have had an impact on other people.	4.647	−.275	−.649	.738	28.868			
5. I try to be creative in most things that I do.	5.396	−.776	.065	.739	21.376			
6. I think that I will be remembered for a long time after I die.	4.937	−.567	−.321	.786	24.492			
7. Others would say that I have made unique contributions to society.	5.313	−.662	−.101	.739	29.297			
8. I have important skills that I try to teach others.	4.703	−.275	−.820	.787	23.8			
9. In general, my actions do not have a positive effect on other people.	4.168	.762	−.794	.798	23.436			
10. I feel as though I have done nothing of worth to contribute to others.	4.01	.007	−.970	.716	19.181			
11. I have made many commitments to many different kinds of people, groups, and activities in my life.	4.477	−.346	−.675	.804	38.799			
12. Other people say that I am a very productive person.	5.079	−.650	−.457	.795	46.421			
13. I have a responsibility to improve the neighbourhood in which I live.	5.338	−.730	−.309	.775	44.524			
14. People come to me for advice.	5.048	−.639	−.323	.807	54.165			
15. I feel as though my contributions will exist after I die.	4.766	.045	−.984	.747	35.673			
Employee attitude to water and energy saving at HOME (AtHOME)						.873	.632	.808
16. Reducing heating in the home has no effect in tackling climate change.	4.306	−.087	−.847	.823	39.03			
17. It is every Iranian's responsibility to reduce energy resources they use at home.	3.709	.116	−.631	.783	30.624			
18. It is important to conserve energy resources (gas and electricity) at home.	3.892	.353	−.601	.757	29.053			
19. Doing things like taking shorter showers/using less bath water is important in reducing our home's water usage.	4.868	.470	−.702	.797	16.009			
20.Reducing water usage in the home has no effect in tackling climate change	5.318	.777	−.373	.751	15.883			
Employee water and energy saving behaviour at HOME (BehHOME)						.915	.576	.893
21. At home, I make sure that taps do not drip.	4.470	−.178	−.837	.723	23.953			
22. At home, I use minimal water for cleaning and laundry.	4.481	−.133	−.671	.775	27.743			
23. At home, I strictly adhere to water restrictions.	4.704	−.124	−.792	.762	26.594			
24. At home, I do not conserve any water.	4.077	.197	−.753	.772	22.278			
25. At home, I try to actively reduce my electricity consumption.	3.971	.193	−.537	.786	18.656			
26. At home, I switch off lights when not needed.	3.902	.176	−.607	.866	75.12			
27. At home, I add or remove clothing rather than turning heating or fan or air conditioning up when it's hot or cold.	4.125	.023	−.952	.843	75.598			
28. At home, I open or close windows rather than turning heating or fan or air conditioning up when it's hot or cold.	3.789	.163	−.829	.711	18.043			
29. Doing things like turning off entertainment equipment when not in use is important in reducing our home's emissions.	4.673	−.283	−.762	.775	27.743			
Employee water and energy saving behaviour at WORK (BehWORK)						.851	.589	.767
30. While working in the hotel, I strictly adhere to water restrictions.	3.678	1.049	.224	.783	15.026			
31. While working in the hotel, I do not conserve any water.	3.438	.892	−.163	.766	10.766			
32. While working in the hotel, I try to actively reduce my electricity consumption.	3.289	.269	−.938	.803	20.725			
33. While working in the hotel, I switch off lights when not needed.	3.489	−.205	−.944	.82	49.883			
34. While working in the hotel, I add or remove clothing rather than turning heating or fan or air conditioning up when it's hot/cold.	4.141	−.465	−.830	.705	36.665			
35. While working in the hotel, I open or close windows rather than turning heating or fan or air conditioning up when it's hot/cold.	4.655	−.068	−1.202	.721	20.495			
Employee attitude to water and energy saving at WORK (AtWORK)						.913	.569	.891
36. Doing things like turning off hotel equipment when not in use is important in reducing our workplace's emissions.	5.318	−.461	−.821	.763	19.781			
37. Reducing heating in the hotel has no effect in tackling climate change.	5.061	−.734	−.548	.708	27.433			
38. It is every hotel employee's responsibility to reduce energy resources they use at work.	4.193	−.519	−.959	.734	29.4			
39. It is important to conserve energy resources (gas and electricity) while working in the hotel.	3.872	.101	−.674	.847	57.772			
40. Doing things like using less water to clean, cook, and do laundry at work, is important in reducing our hotel's water usage.	4.820	.267	−.754	.795	41.266			
41. Reducing water usage while working in the hotel has no effect in tackling climate change.	4.820	−.248	−1.200	.778	42.267			
42. It is every hotel employee's responsibility to reduce water usage at work.	4.661	−.190	−.856	.754	28.803			
43. It is important to conserve water resources while working in the hotel.	3.879	.206	−.758	.739	27.661			

Note: Range = 1−7; ρ_{cr} = composite reliability; α = Cronbach's α; AVE = average variance extracted. *t*-values for the item loadings to two-tailed test: *t* > 1.96 at *p* < .05, *t* > 2.57 at *p* < .01, *t* > 3.29 at *p* < .001.

Taheri, 2012; Hair et al., 2010; Hair et al., 2014; Liang et al., 2007). "PLS-SEM's statistical properties provide very robust model estimations with data that have normal as well as extremely non-normal (i.e., skewness and/or kurtosis) distributional properties" (Hair et al., 2014, p. 22). For all constructs, tests of Skewness and Kurtosis were conducted and results show that the assumption of normality is not violated (Table 1). Thirdly, it is suitable when the structural model has large numbers of indicators (Fraj, Matute, & Melero, 2015; Hair et al., 2014). In this study, the model includes 43 indicators, so it is sensible to use PLS. Component-based SEM (i.e., PLS) can deal with highly complex models i.e., up to 100 constructs and 1000 indicators (see also Hair et al., 2014; Henseler, Ringle, & Sinkovics, 2009; Oom do Valle & Assaker, 2015; Wetzels, Odekerken-Schröder, & van Oppen, 2009; Wold, 1989). According to Wetzels et al. (2009, p. 190), "model complexity does not pose as severe a restriction to PLS path modelling as to covariance-based

SEM, since PLS path modelling at any moment only estimates a subset of parameters … Consequently, PLS path modelling would be more suitable to more complex models …". Both the measurement and structural model were tested within SmartPLS 3.0 software (Ringle, Wende, & Becker, 2014). The non-parametric bootstrapping technique was used with 447 cases, 5000 sub-samples and individual sign changes (Hair et al., 2014).

4.1. Analysis of the measurement model

After checking the variable-to-sample ratio, the analysis followed Hair et al.'s (2014) and Fornell and Larcker's (1981) suggested procedure for assessing convergent and discriminate validity (Table 1). Convergent validity depends on 4 criteria: (1) all indicator loadings should exceed .7 and be significant; (2) composite reliabilities should be above the required threshold of .7; (3) Cronbach's alpha should exceed .7; (4) average variance extracted (AVE) for each construct should exceed .5. The results indicated that indicator loadings are above the recommended threshold, the composite reliability ranges from .851 to .929, Cronbach's alpha ranges from .767 to .914, and AVE ranges from .567 to .632. All four conditions for convergent validity thus hold. To test whether constructs differed sufficiently, two approaches were used: (1) Fornell and Larcker (1981) criterion, which requires a construct's AVE to be larger than the square of its biggest correlation with any construct (see Table 2) and our constructs met this requirement. (2) Henseler, Ringle and Sarstedt's (2015) heterotrait–monotrait ratio of correlations (HTMT) approach was used. Henseler, Ringle, and Sarstedt (2015) note the HTMT approach shows superior performance, by means of a Monte Carlo simulation study, compared to Fornell-Larcker's criterion. If the HTMT value is below .85, discriminant validity should be recognised between constructs. In this study, HTMT values of the constructs ranged from .368 to .715. The $HTMT_{inference}$ criterion was also tested using complete bootstrapping in order to check whether HTMT is significantly different from 1. $HTMT_{inference}$ shows that all HTMT values are significantly different from 1 (ranged from .434 to .768), therefore discriminate validity is established. All appeared to support the reliability and validity of the scales.

4.2. Analysis of the structural model and key findings

The analysis used cross validation communality and redundancy indices to assess the quality of the structural model (i.e., blindfolding procedure in SmartPLS) (Chin, 2010; Hair et al., 2014). All values of the Q^2 are positive and similar across omission distances which confirm the model's predictive relevance and stable model estimates (Chin, 2010) (Table 3). Goodness of fit (GoF) index was also calculated using the procedure from Wetzels et al. (2009). The index is judged against the GoF criterion for small (.10), medium (.25) and large (.36) effect sizes based on Cohen's (1988) cut-off criteria. The overall GoF is .54, which shows an excellent model fit.

Table 2
Latent variables correlation matrix.

	AtHOME	AtWORK	BehHOME	BehWORK	GEN	Mean	SD
AtHOME	**.795**					3.201	1.185
AtWORK	.549*	**.754**				4.688	1.394
BehHOME	.585*	.583*	**.759**			4.177	1.304
BehWORK	.452**	.553**	.524*	**.767**		3.939	1.102
GEN	.433**	.508*	.537*	.554*	**.753**	4.770	1.213

Note: **Significant at the 0.01 level; *Significant at the 0.05 level. Square root of average variance extracted (AVE) is shown on the diagonal of the matrix in boldface; inter-construct correlation is shown off the diagonal; SD= Standard Deviation.

The model explains 40% of AtHOME, 59% of AtWORK, 65% of BehHOME, and 73% of BehWORK. R^2 values are greater than the recommended .10 value (Hair et al., 2010) (see Table 3). Fig. 2 illustrates the graphical demonstration of direct effects. The decomposition of effects (direct, indirect, and total) (see Table 4) was also calculated. Zhao, Lynch, and Chen (2010, p. 200) argue that "… the one and only requirement to demonstrate mediation is a significant indirect effect". In order to examine the magnitude of the mediation effects, the variance accounted for (VAF) value was used which shows the ratio of the indirect effect to the total effect. PLS is based on standardized path coefficients compared with the frequently used Sobel test which uses non-standardized path coefficients (Hair et al., 2014; Riley, Pina, & Bravo, 2015). VAF scores higher than 80% signify full mediation, scores ranging from 20% to 80% demonstrate partial mediation, and VAF below 20% indicates no mediation (see Table 4). Finally, the study controlled for the effects of participants' characteristics including age and gender on home and workplace attitudes, home and workplace behaviours and generativity. Theses variables were not found to be significantly related to participants' attitudes, behaviours and generativity (see also Table 4).

Donate and Sanchez de Pablo (2015) categorise path coefficients that are below .30 as causing moderate effects, from .30 to .60 as strong, and above .60 as very strong. H1 and H2 are supported by literature and predict a positive direct impact from generativity on AtHOME and AtWORK. The result also confirms the strong indirect effect of generativity on AtWORK through AtHOME (i.e., partial mediation, see Table 4). Therefore, employees who show very strong levels of generativity are more likely to have positive attitudes to water and energy saving at home and in the workplace. Additionally, H3, H6, H7 and H8, which all relate to the effect of specific attitudes on behaviour, received empirical support from the data which is consistent with previous studies (Lo et al., 2012; Marans & Lee, 1993; Tudor et al., 2008). That is, employees' specific attitudes to water and energy saving at home and in the workplace positively influence their behaviour at home and workplace, respectively. As also seen in Table 4, AtWORK fully mediates the relationship between AtHOME and BehWORK (H7). Consistent with our literature review, this result illustrates that attitudes at home may spillover into the workplace context; however, they do not have a direct effect on work behaviour. This may be due to the fact that water and energy saving behaviours at the workplace are not the financial responsibility of the employees and may be out of their control (cf. Carrico & Riemer, 2011).

On the other hand, H4 and H5 confirm direct effects of generativity on BehHOME and BehWORK (Table 4), supporting previous studies such as Matsuba et al. (2012). The bootstrapping procedure confirms a strong indirect effect of generativity on BehHOME through employees' attitudes (i.e., partial mediation). The results also show that employees' attitudes fully mediate the relationship between generativity and BehWORK. Finally, the results fail to confirm that BehHOME has a positive influence on BehWORK, as the effect is statistically non-significant (Table 4). This leads to the rejection of H9, which goes against the prior but limited literature in the area (Marans & Lee, 1993; Manika et al., 2014). It is interesting to note that AtHOME does have a strong direct effect on AtWORK but this does not translate into behaviours.

5. Conclusions

The research has examined links between generativity, environmental attitudes and behaviour of employees towards water and energy saving, both at home and in the workplace. A conceptual model was proposed and tested using a sample of 447 hotel employees in Iran. The results provide a number of relevant

Table 3
Blindfolding results.

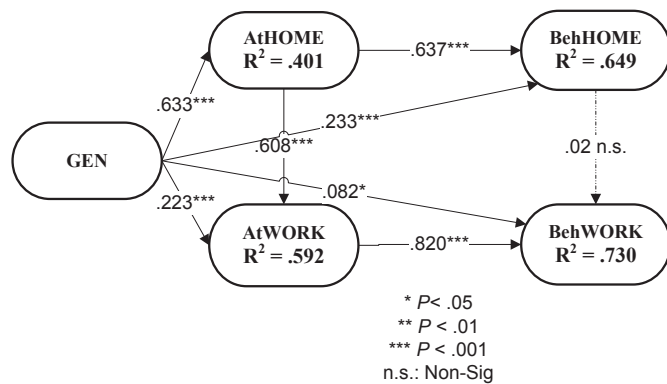| Construct	R^2	Omission distance = 7		Omission distance = 12	
		Communality Q^2	Redundancy Q^2	Communality Q^2	Redundancy Q^2
AtHOME	.401	.378	.247	.385	.245
AtWORK	.592	.433	.330	.446	.330
BehHOME	.649	.465	.367	.457	.365
BehWORK	.730	.310	.424	.311	.424
GEN	n/a	n/a	n/a	n/a	n/a

Note: n/a = not applicable.

Fig. 2. Research model with only direct effects demonstrated (standardised solution).

theoretical and practical implications related to the environmental aspects of organisations in general and the hospitality industry and collectivist cultures in particular. These are detailed below.

5.1. Theoretical implications

The paper has contributed to the academic literature in several ways. Firstly it has applied the concept of generativity to work and home environmental behaviours and has examined the impact of generativity on specific attitudes (i.e., energy and water saving) rather than general environmental attitudes. This demonstrates

that generativity also has a significant effect on specific attitudes. In doing so, this research has highlighted the impact of generativity may be stronger for attitudes and behaviours in the home than in the workplace. This may be because the home is a place where concern for and commitment to the well-being of future generations, a key element of generativity, is more important (McAdams & Logan, 2004), given proximity to loved ones and relatives. Furthermore, Iran is a collectivist, family-oriented society where helping others and being responsible are considered as 'sawab' (i.e., personal reward which will be counted on the Judgment Day) (Karatepe, 2011; 2013; Shafeie et al., 2010) and, hence, this may explain the strong effect of generativity in the home.

The findings also confirm prior views that environmental attitudes have an effect on environmental behaviour, both in the home and in the workplace. All attitude-behaviour relationships tested here were significant, thus supporting the argument that specific attitudes are likely to have a strong effect on behaviours (Dascher et al., 2014). However, unlike some prior research (Marans & Lee, 1993; Manika et al., 2014, 2015) there was not a direct spillover effect between behaviours at work and in the home, although AtHOME did have an indirect effect on BehWORK, through AtWORK. Moreover, the study extends prior research with a combined investigation of energy and water saving behaviours.

5.2. Practical implications

There are a number of practical implications for the hospitality industry that can be drawn from the present research. These are particularly relevant for non-Western collectivist societies such as

Table 4
Structural model: decomposition of effects.

Hypotheses and Path	Standardised coefficients (*t*-values)			VAF
	Total effects	Direct effects	Indirect effects	
H1 GEN → AtHOME	.633 (23.296)	.633 (23.296)		
H2 GEN → AtWORK	.608 (19.724)	.223 (5.293)	.385 (12.815)	63% (PM)
H3 AtHOME → AtWORK	.608 (14.614)	.608 (14.614)		
H4 GEN → BehHOME	.637 (21.612)	.232 (5.833)	.405 (12.784)	62% (PM)
H5 GEN → BehWORK	.554 (12.413)	.082 (2.11)	.472 (16.117)	85% (FM)
H6 AtHOME → BehHOME	.637 (15.089)	.637 (15.089)		
H7 AtHOME → BehWORK	.498 (12.199)		.498 (12.199)	100% (FM)
H8 AtWORK → BehWORK	.82 (31.929)	.82 (31.929)		
H9 BehHOME → BehWORK	.02 (.460)	.02 (.460)		
Control variables				
Age → GEN	.023 (1.010)			
Gender → GEN	.012 (.278)			
Age → AtHOME	.078 (1.546)			
Age → BehHOME	.054 (.987)			
Age → AtWORK	.010 (.689)			
Age → BehWORK	.059 (1.341)			
Gender → AtHOME	.077 (1.060)			
Gender → BehHOME	.089 (1.673)			
Gender → AtWORK	.032 (.349)			
Gender → BehWORK	.046 (.579)			

Note: t-values for the item loadings to two-tailed test: $t > 1.96$ at $p < .05$, $t > 2.57$ at $p < .01$, $t > 3.29$ at $p < .001$; PM = Partial mediation, FM = Full mediation.

Iran, and also for the design of internal social marketing programmes and interventions. Such programmes are often used to encourage and develop employee environmental behaviour and integrate strategic CSR policies into organisations (Smith & O'Sullivan, 2012). The present study highlights the link between generativity and environmental attitudes and behaviour, and thus any internal social marketing communications could draw on aspects of generative concern such as well-being of future generations and contributing to society (Huta & Zuroff, 2007) in an attempt to strengthen environmental attitudes and consequently behaviours among hospitality employees. More specifically this sample demonstrated lower levels of understanding regarding the importance of conserving resources at work (demonstrated by low scores on 'It is important to conserve energy resources (gas and electricity) while working in the hotel' (3.872), 'It is important to conserve water resources while working in the hotel' (3.879) and 'While working in the hotel, I switch off lights when not needed' (3.489)) suggesting that knowledge and belief social marketing objectives and goals (step 4 of the social marketing planning process; Lee & Kotler, 2015) should be included and need to be achieved, through relevant knowledge and belief focused marketing communications before a behaviour change is likely. A lack of knowledge and understanding is also noted in the home (demonstrated by 'Reducing water usage in the home has no effect in tackling climate change' (5.318)) but the results also show individual's not taking responsibility may be an important determinant of behaviour (demonstrated by 'It is every Iranian's responsibility to reduce energy resources they use at home (3.709)) and again suggesting the need for social marketing knowledge and belief goals to be set and met. Additionally, given the links between attitudes, generativity and behaviour may be stronger in the home context, social marketing communications used in the workplace could also highlight the importance of these behaviours across the two contexts (home-work), highlight similarities between them and frame their importance in relation to collectivist cultural values. This may also have the effect of strengthening the link between behaviour at home and in the workplace and build a spillover effect between work and home. However, this requires further investigation.

5.3. Limitations and future research

As the first study that applies the generativity construct in the context of the hospitality industry and to employee environmental behaviour, the present research has several limitations which could be overcome by future research. First, the research was cross-sectional and future studies should include a longitudinal design, perhaps assessing an internal social marketing intervention using both qualitative and quantitative methods (Gregory-Smith et al., 2015). Second, the behaviour was measured as self-reported and given that the gap between self-reported and actual behaviour is often noted (Barker, Fong, Grossman, Quin, & Reid, 1994; Lichtman et al., 1992; Midanik, 1982) future research should seek to measure actual behaviour, as well as making comparisons between reported and actual behaviours, as well as examining changes in actual and reported behaviours before and after a social marketing intervention. Third, future research should also make comparisons between specific and general attitudes and, potentially, examine these separately within future studies. Fourth, the effects of generativity on employees' attitudes and behaviours where only tested in one collectivist culture and, hence, future studies should seek to examine these relationships in different nations and cultures as well as making comparisons between them. Fifth, while the work did explore both water and energy attitudes and behaviours future research should continue to examine a wide range of behaviours

such as recycling and transport/commuting to understand any spillover effects between behaviours. This is needed because of the uncertainty over the correlations or spillovers between some types of environmental behaviours (Thørgersen & Ölander, 2003). Sixth, the sampling technique used in this study is limited and future research should attempt to use a stratified sampling technique, which was not possible in this study as not all Iranian hotels have appropriate infrastructures to encourage environmental behaviours. Seventh, future studies should use a qualitative approach to understand why some of the hypothesised relationships were not supported. Finally, it would also be worthwhile assessing potential consumer response to any strategies and social programmes or interventions put into place based on this analysis. Consumer responses to CSR are increasingly being researched (Green & Peloza, 2011; Pomering & Dolnicar, 2009) and recent research has highlighted that a proactive CSR stance results in favourable attitudes towards the organisation and higher purchase intentions (Groza, Pronschinske, & Walker, 2011).

5.4. Final remarks

This paper brings theoretical and practical contributions to the environmental tourism CSR literature, by highlighting the impact of generativity on environmental attitudes and behaviours, among Iranian hospitality employees. Though generativity was found to have an important role in predicting environmental attitudes, both in the workplace and at home, this influence was found to be stronger in the home. Additionally, the research confirms the link between environmental attitudes and behaviours, supporting the use of specific attitudes as a superior measure of attitudes (i.e., over general environmental attitudes or concerns). However, a spillover effect between behaviours in the home and in the workplace was not found in the studied context of the behaviours, industry and culture examined here. This opens several opportunities for research into a growing area of research and interest among tourism practitioners.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.tourman.2016.03.027.

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