An Environmental Social Marketing Intervention among Employees: Assessing Attitude and Behaviour Change

Diana Gregory-Smith*

Management School, University of Sheffield

Victoria K. Wells

Durham University Business School, Durham University

Danae Manika

School of Business and Management, Queen Mary University of London

Sonja Graham

Global Action Plan

* Corresponding author: Diana Gregory-Smith, Management School, University of Sheffield, Conduit Road, Sheffield, S10 1FL, telephone: +44(0)1142223264, email: d.gregory-smith@sheffield.ac.uk

Diana Gregory-Smith is a Lecturer in Marketing at the Management School, University of Sheffield. Her research interests lie in the area of consumer psychology, ethical consumption and social marketing. She is also interested in tourism marketing. On-going projects are related to advertising, emotions, and health marketing. Prior to joining Sheffield University she was Lecturer in Marketing at the University of Durham and a Teaching Assistant in Marketing at Nottingham University Business School. Diana published both in subject-specific and interdisciplinary journals such as the Journal of Marketing Management, International Journal of Tourism Research and Interface Focus. She has also contributed with a chapter to the Marketing Innovations for Sustainable Destinations, edited by Fyall, A. *et al.* published in 2009.

Victoria K.Wells is a Senior Lecturer in Marketing at Durham University Business School. Her research interests lie in the application of behavioural psychology to consumer choice, foraging ecology models of consumer behaviour and environmental behaviour, psychology and social marketing. She joined Durham University Business School in 2011 after holding the post of Research Associate and Lecturer in Marketing and Strategy at Cardiff Business School. Prior to joining Cardiff Business School she worked in Marketing Communications as an Account Executive. She has published in a wide range of journals including Journal of Business Research, Journal of Marketing Management, Marketing Theory, Service Industries Journal and Psychology and Marketing amongst others and is editor of the Handbook of Developments in Consumer Behaviour published in 2012.

Danae Manika is a Lecturer in Marketing at the School of Business and Management, at Queen Mary University of London. Her research interests include consumer behaviour, marketing communications, social marketing, and advertising, often with a focus on health and environmental issues. Before joining Queen Mary University of London, she worked as a

Lecturer in Marketing at Durham University Business School, and prior to that as an Assistant Instructor in Advertising at the University of Texas at Austin, in the United States, where she also received her PhD. Her research has been published in journals, such as the *Journal of Health Communication*, *Health Marketing Quarterly* and the *Academy of Health Care Management Journal*, as well as in various marketing conference proceedings.

Sonja Graham has an academic background in psychology and is a behaviour change programme specialist with over five years' experience in designing and delivering social marketing, behaviour change and training programmes for both private and public sector organisations. At the sustainability charity Global Action Plan Sonja is responsible for using the latest research from the areas of Social Psychology, Behavioural Science and Social Marketing to develop new behaviour change initiatives for business, school and community audiences. Her latest programmes have included a Social Marketing programme for the Welsh Government targeting energy use through household clothes washing behaviour and a Community Based Social Marketing programme looking at refrigerator-use behaviours for a major retailer.

An Environmental Social Marketing Intervention among Employees: Assessing Attitude and Behaviour Change

Abstract

The paper examines the impact of individual and organisational factors on two simultaneous environmental social marketing interventions (SmartPrint and Heating/Cooling), and types of behaviours (recycling, printing, heating/cooling); among employees of a British City Council. Using a quantitative methodology, in the form of a situated experiment, self-reported attitudes, perceptions of organisational support, self-reported behaviours, and actual behaviours were measured before and after the interventions. The interventions generated significant changes in employees' overall environmental behaviour, heating/cooling behaviour, and in some perceptions of organisational support (support and incentives/rewards). Findings are used to detail recommendations for future campaigns aiming to improve organisations' environmental performance and to drive enduring employee behavioural change.

Summary statement of contribution

This paper contributes to the limited prior literature on employees' environmental behaviour and, in particular, the limited research on the influence of both organisational and individual attitudes and behaviours. This study makes a number of contributions to the employee environmental behaviour literature by examining: (1) the impact of both individual and organisational factors; (2) on two simultaneous interventions, and (3) different types of behaviour; (4) by using a situated experiment.

Keywords: Social Marketing, Intervention, Environmental Attitudes, Employee Environmental Behaviour, Perceptions of Organisational Support

An Environmental Social Marketing Intervention among Employees: Assessing Attitude and Behaviour Change

Introduction

While the environmental behaviour of individuals and families within and in relation to the household has been studied extensively in the academic literature, the environmentally friendly behaviour[1] of employees within organisations, and the use of social marketing campaigns/interventions[2] delivered during working hours has been studied very little (Lo et al., 2012b). However, this type of behaviour is extremely important for reducing levels of carbon produced by organisations. Pérez-Lombard et al. (2008) note that energy consumption from buildings is an increasing concern, fuelled by a growth in the population, an increase in demand for buildings and comfort levels, and the rise in time spent inside buildings. They note that office buildings within the commercial and retail sectors account for 17% of UK energy consumption and 2% of total energy use. Within offices, 55% of energy consumption is through heating, ventilation and air-conditioning (HVAC), 17% from lighting and the rest from equipment, food preparation and refrigeration.

Early studies in this area have been taken from or compared with household environmental behaviour, but there are substantial differences to consider with regards to the motivation for and issues surrounding employees' environmental behaviour. Employees do not typically have a financial interest at the workplace as they do through billing at home. No energy bills mean that individuals are not always concerned with their energy usage, they have little context for how much they have used relative to previous periods, and devices are often shared by multiple employees so individuals may feel the problem is out of their hands

[1] The words 'environmentally friendly', 'green' and 'pro-environmental' are used interchangeably in this article.

[2] Throughout this paper the terms 'social marketing campaign' and 'social marketing intervention' are used interchangeably.

(Carrico & Riemer ,2011; Siero, Bakker, Dekker, & van den Burg, 1996). However, Carrico and Riemer (2011) note that, on the plus side, employees are a more captive audience and can be targeted through low cost communications often already in place, such as e-mails and newsletters.

Prior research has focused on two factors which affect employee environmental behaviour: individual factors and organisational factors. This study will concentrate on individual factors and explore changes in attitudes and behaviours as the result of a social marketing intervention, but it will also highlight and analyse aspects of organisational support and perceptions of the organisation. The paper presents and analyses the results of an environmental social marketing intervention run by Global Action Plan, a leading UK environmental charity, among the employees of a British City Council. The intervention consisted of two campaigns: a heating/cooling campaign, and a printing campaign. Thus the paper has several research objectives. Firstly, to explore how employees view workplace pro-environmental behaviours, whether they view them in the same way or perceive them as types or groupings of behaviours. Secondly, to investigate the dimensions of general environmentally friendly attitudes held by the employees, their specific attitudes towards workplace environmental behaviour and their effect on behaviours. The third objective is to investigate the relationship between organisational variables (i.e. level of 'greenness', support and incentives) and individual variables (i.e. workplace attitudes and self-reported behaviours) in the workplace and their effects on actual environmentally friendly behaviour. Fourthly, to assess any changes in employees' environmental attitudes and behaviour due to the social marketing campaigns carried out within the organisation and, finally, to assess the strengths and weaknesses of the social marketing campaigns, the research instruments and the measurements employed. In relation to the final objective, this paper aims to make

recommendations for future interventions that will improve organisations' environmental performance and drive enduring behavioural change.

In comparison to the majority of prior research in the area, which has taken a cross sectional approach and have largely used self-reported behaviour, studying environmental behaviours individually rather than simultaneously, this study examines: a) the impact of two real social marketing campaign interventions used among a Council's employees, b) in relation to different types of environmental behaviours (printing and heating/cooling), simultaneously. In doing so, the paper contributes to the extant literature by studying real world empirical data including measures not only of reported behaviour, but importantly actual behaviour. Both individual and organisational variables are examined via a quantitative methodology, which aims to understand the effects of the social marketing interventions, and suggest future management implications for the design of effective social marketing interventions that motivate different types of environmental behaviours at the workplace.

Literature review

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 the behaviour of individuals and communities. Vinning and Ebreo (2002) in their review of perspectives on conservation behaviour, highlight the use of a range of relevant theories and models utilised including operant conditioning, motivational, moral and value theories, theories of attitude, belief and intention, theories of emotion and affect, as well as a range of less frequently used approaches. Steg and Vlek (2009) in their later review suggest that many of the above theories are motivational in their actions and act as antecedents to pro-environmental behaviour. They also note the importance of removing barriers, and understanding habitual behaviour and contextual factors in the encouragement of pro-environmental behaviour. Steg

and Vlek (2009) also 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 note that further work, perhaps in terms of bringing together different frameworks, is needed. Specifically, within the study of workplace pro-environmental behaviour, a number of individual and organisational characteristics have been used to help explain employee environmental behaviour including: attitudes/beliefs, norms/subjective norms, self-efficacy, habit, motivation, knowledge, feedback and socio-demographics, organisational structure and organisational support, amongst many others (see review by Lo, Peters, & Kok, 2012b). However, these studies have not generally used a particular model or framework. This study focusses on the role of attitudes, both about individual behaviour and the organisation, with the aim of exploring their joint and parallel effects on pro-environmental behaviour (both self-reported and actual) in the workplace. In particular, it will focus on both individual factors (i.e. employees' general environmental attitudes and workplace-related attitudes) and organisational variables (i.e. level of organisational support, incentives and 'greenness') as perceived by the employees and their effects on self-reported and actual measures of behaviour. The aim is to explore the connections between these variables and their effects on employees' specific environmental attitudes and behaviours (both self-reported and actual) related to: a) recycling, b) heating/cooling switching and c) overall workplace green behaviour. The literature will highlight and discuss current thinking on the measurement of behaviour (both self-reported and actual), attitudes (both general and towards the act itself), organisational perceptions and the role of interventions in developing pro-environmental behaviour in the workplace and beyond. A series of hypotheses are advanced based on prior research findings, which are depicted in Figure One, at the end of the literature review section.

Behaviour: Both Vinning and Ebreo (2002), and Steg and Vlek (2009) highlight the multiple behavioural focuses and measurements that have been utilised in general and

employee environmental behaviour research. A key feature of behaviour measurement within this area is the discussion of the various merits of studying actual versus self-reported behaviour. In employee environmental behaviour, both actual (waste bin analysis: Tudor et al., 2007; et al. 2008, gas and electricity data: Shippee & Gregory, 1982, gasoline consumption: Siero et al., 1989) and self-reported (employees' environmentally responsible organisational citizenship behaviours (EROCBs): Smith & O'Sullivan, 2012, recycling: McDonald, 2011; Scherbaum et al., 2008) behaviour measures have been utilised. However, a discrepancy between self-reported and actual behaviour is often noted (Midanik, 1982; Lichtman et al., 1992; Barker et al., 1994). Criticism is also levelled towards the ability of intentions to accurately predict behaviour based on both: the phenomenon of self-generated validity, which leads to the assumption of a significant intentions-behaviour relationship, even when this is inexistent (Chandon et al., 2005; Feldman & Lynch, 1988; Morwitz & Fitzsimons, 2004), and consistency or self-presentational biases, which can lead to overestimating the relationship between intentions and behaviour (Budd, 1987). Similarly, the attitude-behaviour gap has been consistently reported in the area of ethical consumption and ethical decisions (Chatzidakis, Hibbert, & Smith, 2007; Gregory-Smith et al., 2013; Szmigin, Carrigan, & McEachern, 2009), in corporate responsibility (Boulstridge & Carrigan, 2000), in general environmental behaviour (Kollmuss & Agyeman, 2002) and in the purchase of organic food (Padel & Foster, 2005) amongst a range of other areas. Therefore, by allowing for measurements of actual environmental workplace behaviour, in addition to self-reported behaviour, this research and its findings are partially able to overcome some of the criticism related to the intentions/self-reported-actual behaviour gap.

In addition, Vinning and Ebreo (2002) note that behaviour can be described in several ways both of which have been used in employee environmental behaviour studies. Firstly, as a dichotomous variable in that the behaviour either happens or does not (e.g. a person either recycles or does not) and secondly in terms of behaviour frequency (e.g. recycling often),

duration (e.g. recycling for many years) or intensity of performance (e.g. recycling all materials). Studies have generally employed the dichotomous variable of whether the behaviour is performed or not, however, a number of studies have also used more sophisticated behaviour measures exploring, for example, the quality of recycling (Humphrey et al., 1977).

The literature has also focused on a range of behaviours with waste management/recycling being the most popular (Ludwig et al., 1998; Marans & Lee 1993; McDonald, 2011; Tudor et al., 2008), but studies have also researched climate control, lights, (Lo et al., 2012a; 2012b), driving behaviour (Siero et al., 1989), computers, lights and fan usage (Scherbaum et al., 2008) and energy use (Carrico & Riemer, 2011) amongst others. In addition, the majority of studies have focused on a single behaviour (e.g. recycling) while only a minority have focused on multiple (and similar) behaviours. However, caution should be exercised in assuming that the antecedents and concomitants of any particular behaviour are the same or even similar (Tracy & Oskamp, 1983-1984; Vinning & Ebreo, 2002; Steg & Vlek, 2009) with factor analysis highlighting that recycling is not strongly related to energy, water conservation (Berger, 1997); and household purchasing behaviour (Ebreo & Vinning, 1994; Linn et al., 1994) for example. Research suggests that generalisation between behaviours might be the case only when the behaviours are closely related (Reams et al., 1996) and that the performance of one pro-environmental behaviour might actually inhibit or reduce the performance of others (Thorgersen, 1999).

Attitudes: Attitudes, along with beliefs and intentions, have been a popular focus within the study of pro-environmental behaviour as well as employee environmental behaviour. Studies have largely focused on the prediction of behaviour from general attitudes about the environment (Humphrey et al., 1997; Andersson et al., 2005; Wehrmeyer & McNeil, 2000; Scherbaum et al., 2008). However, some authors suggest that the relations between general environmental concern and behaviour have tended to be weak (Schultz,

Oskamp & Maineri, 1995) and a number of authors, building on the suggestions from the Theory or Reasoned Action (Fishbein & Ajzen, 1975) and/or the Theory of Planned Behaviour (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. A number of studies have used specific attitudes towards the behaviour (Lee et al., 1995; Siero et al., 1996) and some studies have also used both general and specific attitudes (Marans & Lee, 1993; Tudor et al., 2008), although it appears that a comparison has not yet been made between these two attitudinal perspectives.

Vinning and Ebreo (2002) suggest that the different attitudinal foci (general/specific) may explain the different results observed in a range of general studies and may play a part in studies of workplace environmental behaviour where there has been mixed support for the attitudes as a predictor of pro-environmental behaviour in the workplace. For instance, many studies in the area have found attitudes to be a key predictor of environmental behaviours (Marans & Lee 1993; Tudor at al., 2007; Tudor at al., 2008), while others have not found this correlation (Siero et al., 1989; et al. 1996), in addition to others who found only a moderate correlation with behavioural intention and a weaker relationship to behaviour (Lo et al., 2012a; 2012b).

However, as few studies in employee environmental behaviour have compared directly between the effects of general and specific attitudes and, as Polonsky et al (2012) note in their study of general and carbon-related environmental knowledge on general environmental attitudes, future research should explore and compare both specific and general attitudes. Only this will provide a full understanding of the predictive differences of both across a range of differing behaviours. Indeed, Schultz, Oskamp and Maineri, (1995) suggest that general environmental concern is more strongly related to behaviour where the

behaviour in question requires more effort. However, this has not yet been replicated in the employee environmental behaviour field. Hence, the current research measures both the effects of general and specific attitudes and allows for a comparison between the two.

As per the review above, it is hypothesised that:

H1: General environmental attitudes (i.e. environmental concern) will have a significant positive influence on employees' self-reported: a) environmental heating/cooling switching behaviour; b) recycling behaviour; and c) overall environmental behaviour, at the workplace.

and:

H2: Attitudes toward reducing heating at the workplace will have a significant positive influence on employees' self-reported: a) heating/cooling switching behaviour; and b) recycling behaviour at the workplace.

In addition, it is hypothesised that:

H3: General environmental attitudes will have a significant positive influence on employees' attitudes toward reducing: a) heating; and b) resources use, at the workplace.

Organisational variables: As noted previously, while studies on workplace environmental behaviour have utilised a range of variables, organisational variables and in particular their relationship with individual variables has been studied very little. In this study, the organisational variables considered and measured based on employees' perceptions are related to: a) the organisation's level of greenness; b) the level of organisational support received; and c) the amount of rewards/incentive offered to the employees by the organisation.

A small number of studies have explored issues surrounding *organisational commitment*, referring to how committed the organisation is to the issue at hand, which in this case is pro-environmental behaviour. In the CSR literature, Hansen et al. (2011) and Rupp et al. (2006) note that employees will respond meaningfully to their perceptions of the CSR activities of their employers (i.e. their perception of the environmental reputation and

environmental behaviour of the organisation) and, specifically, those employees who perceive their employer to be more socially responsible, are more likely to engage in organisational citizenship behaviours (OCBs) of which pro-environmental behaviour is one. If an organisation does not behave in a socially responsible way, employees are likely to exhibit negative work attitudes and behaviour and, conversely, if their organisation is perceived as being socially responsible, more positive behavioural and attitudinal reactions are likely to be exhibited among employees (Rupp et al., 2006; Hansen et al., 2011). Overall, the CSR literature suggests that the perception of an organisation's commitment to CSR is important in determining both the attitude and behaviours of employees. Within the CSR, business ethics and employee environmental behaviour literatures, organisational commitment has also been used to predict employee engagement (Aguinis & Glavas, 2012; Chun et al., 2013). In addition, in studies exploring person-organisation fit, it is shown that the degree of similarity/dissimilarity between individual employee's values, beliefs and attitudes and those of the organisation has an effect on: 1) employee's commitment and employee–company identification (Turker, 2009; Kim et al., 2010); 2) how the organisation's behaviour is perceived by the employee; and 3) how much they identify with the organisation and judge the importance of their practices (Kim et al., 2010).

Within the employee environmental literature a few studies have also considered the role of organisational commitment, specifically to environmental issues, as a determinant of individual employees' behaviour. Lee et al. (1995) explored the role of organisational commitment to recycling. They found that organisational commitment was a moderate predictor of both general office recycling behaviour and office paper source reduction. In addition, Ramus and Steger (2000) found that the reputation and perception of a company's environmental policy (representing commitment to the environment) were of importance in employees' likelihood to develop and run eco-initiatives and to partake in pro-environmental behaviour within the organisation. In their study, individuals responded positively if they

perceived a strong organisational commitment to the environment, and if the organisation had a convincing overall environmental policy. However, they do note that sub-policy areas were less important drivers. Andersson et al. (2005) also reported that when supervisors perceive that their company is committed to environmental sustainability they, in turn were more likely to demonstrate pro-environmental behaviours and to also direct these towards the employees they supervised.

Additionally, in the employee environmental literature, both organisational focus and structure have been shown to affect employees' behaviour and attitudes. Tudor et al. (2008) have considered the role of *organisational focus* in their National Health Service (NHS) case study in the UK. They found that the centralised focus and bureaucratic control of the organisation determined the practices and the levels of attention and resources that were directed toward sustainable waste management. They noted that this was evidenced in three ways: (1) impact on beliefs, attitudes and levels of staff motivation, (2) a high degree of apathy coupled with low levels of motivation among staff toward noncore activities and (3) the focus of managers to meet the healthcare related targets, rather than other issues such as sustainable waste management. They also noted that individual motivation is strongly influenced by the organisational focus and describe it as one of the most significant influences on behaviour. Tudor et al. (2008) highlighted the importance of *organisational structure* and, in particular, how it facilitates individual behaviour, decision-making and feedback up the chain, thus affecting individual's motivation and behaviour. Scherbaum et al. (2008) also noted that organisational structures, policies, interventions and characteristics can facilitate or inhibit desired energy-use behaviours within organisations and must be taken into careful consideration.

A number of studies also highlight the importance of *organisational leadership and support* in determining employee environmental behaviour within the workplace and include variables such as encouragement, competence building, communications, rewards (including

incentives which will be discussed further below) and recognition through the management of goals (Ramus & Steger, 2000). Smith and O'Sullivan (2012) note elements of formalization and flexibility, spatial distance from the leader, advisory/staff support, how cohesive the group is and organisational support as key elements of support and leadership. In their qualitative study, they found a general lack of organisational support, environmental leadership or access to decision-makers, is likely to affect employees' environmental behaviours and decisions. Tudor et al. (2008) also found in their study of the NHS that support from managers for the implementation of environmental policies was limited. Grensing-Pophal (1993) note that support is particularly important where employees are developing or running CSR or related programs. Hence, it is likely that if high levels of organisational support are perceived, this will result in greater pro-environmental behaviours in the workplace and a view of the organisation as environmentally friendly. In addition, Ramus and Steger (2000) found that employees who perceived strong signals of support and encouragement from the organisation were more likely to develop and implement eco-behaviours, which in turn positively affects the environment.

Though a number of studies include incentives (both monetary and non-monetary) within general support behaviours (e.g. Ramus & Steger, 2000), others have explored these types of motivational incentives for employee environmental behaviour separately from general support behaviours. Both Tudor et al. (2008) and Siero et al. (1989) suggest that general support behaviours are strongly related to both motivation to comply and also related to organisational focus, structure and culture. Marans and Lee (1993) and Lee et al. (1995) explored how employees felt about the role of economic incentives to environmental behaviours within the workplace. Both studies found that economic motivation was not an effective predictor of behaviour and, more specifically, those who felt that economic incentives and monetary rewards were unimportant tended to be more active in their pro-environmental behaviours. However, a number of general environmental studies suggest that

incentives (often in the form of a financial payment or reduction in costs) can be effective in developing pro-environmental behaviour (Kollmus & Agyeman, 2002), but how effective they are may be dependent on how they interact with a range of factors such as goals (Lindenberg & Steg, 2007), information (Stern, 1999) and other features (Stern, 2000). In addition, research on business ethical practices has shown that rewards and sanctions have a significant effect on ethical behaviour within the organisation. Loe, Ferrell and Mansfield (2000) note in their review that those behaviours rewarded and supported, do occur more frequently and that sanctions may work through minimising opportunity for unethical behaviour. This links to the idea that organisational support also facilitates or provides the opportunity for green behaviour, and makes it easier for employees to change their behaviour. This is particularly evident in studies of recycling in the workplace which show that the number of recycling bins and their location have a direct influence on recycling behaviour (Brothers et al., 1994; Ludwig et al., 1998; Marans & Lee, 1993). It is also likely that this facilitation would help a range of energy-saving behaviours, for example, by providing employees with access and knowledge to heating and lighting controls.

Thus, it is hypothesised that:

H4: Organisational variables (i.e. organisation's level of greenness; organisation's level of support; organisation's incentives or rewards) will have a significant positive influence on employees' attitudes toward reducing: a) heating; and b) resources use, at the workplace.

H5: Organisational variables (i.e. organisation's level of greenness; organisation's level of support; organisation's incentives or rewards) will have a significant positive influence on employees' self-reported: a) heating/cooling switching behaviour; and b) recycling behaviour at the workplace.

Social marketing campaigns and involvement: Organisations use a number of ways to change and influence behaviour within the workplace including internal marketing of which social marketing interventions can form a part.

Internal marketing is the most well-known of the internal communication strategies directed towards behaviour change and is defined as 'a planned effort using a marketing-like

approach to overcome organisational resistance to change and to align, motivate and interfunctionally co-ordinate and integrate employees towards the effective implementation of corporate and functional strategies in order to deliver customer satisfaction through a process of creating motivated and customer orientated employees' (Rafiq & Ahmed, 2000, p. 454). Internal marketing has been used particularly in service organisations and in particular to change corporate culture and to support organisational change (Gummesson, 1987; Hogg et al., 1998; Arnett et al., 2002), increase organisational commitment (Caruana & Calleya, 1998; Chang & Chang, 2009), to improve service quality to the end consumer (Lings & Brooks, 1998) and as a source of competitive advantage (Varey & Lewis, 1999). In addition, internal communications have also been highlighted as a way to influence employee behaviours and to support corporate change (Elving, 2006; Proctor & Doukakis, 2003). While internal marketing has largely focused on the main task functions of employees' job roles rather than contextual or discretionary behaviours such as CSR related organisational citizenship behaviours (OCBs), some authors agree that there is overlap between social and commercial marketing activities (such as internal marketing) and that interest in CSR can be seen as an attempt to integrate societal values into marketing activities (Dibb & Carrigan, 2013) and to take greater account of social interests of employees (Varey & Lewis 1999) and therefore social marketing interventions can be used within internal marketing strategies. However, as internal marketing is often seen a form of commercial marketing, some may identify here a conflict of interests and there is little consensus about whether social and commercial marketing ideas can or should be integrated, due to the differing interests of commercial and non-commercial stakeholders (Dibb & Carrigan 2013). However, as Dibb and Carrigan (2013) note, while it is generally accepted that commercial marketers will focus on benefits to the self and economic benefits to the organisation and social marketers focus on benefits to society, in reality both types of marketers are increasingly focusing on both types of benefits and organisations are realising they have a broader responsibility to

consumers and society more widely. In addition, in the context of this study, a UK Council is an organisation that will already be focused on the society/community it is within (i.e. the Council area) and will already have a responsibility to these citizens. This is supported by Varey and Lewis's (1999) suggestion that the conception of internal marketing should be broadened and developed to take into account social and non-economic needs and interests of stakeholders and, therefore incorporate social marketing interventions. There is an overlap between internal marketing activities and social marketing within organisations, with social marketing interventions in the workplace lying under the umbrella term of internal marketing. While social marketing is the focus here, there are clearly elements of internal marketing at play. However, as social marketing interventions are designed to be focused more carefully and specifically on behaviour change and on encouraging pro-environmental behaviours, we will focus more narrowly on the concepts of social marketing rather than the broader concept of internal marketing within this paper.

Interventions, which have adopted social marketing principles in their design and implementation, have been utilised in a number of settings and contexts to change behaviours, ranging from condom usage to healthy eating. However, in many cases the effectiveness of many of these social marketing interventions have not been fully tested either because the researchers have not returned to measure changes in behaviour post-intervention or simply because researchers have relied on subjective evidence of social marketing intervention effectiveness. One area in which a significant amount of research has been collated supporting the effects of social marketing interventions is the area of health and related behaviours. Studies have reported successful promotion and uptake of insecticide-treated nets for malaria prevention (Agha et al., 2007), early diagnosis of lung cancer (Athey et al., 2012), increased use of condoms and safe sex (Kegeles et al., 1996; Cohen et al., 1999) and prevention of obesity in school children (Foster et al., 2008), among other behaviours. The reviews of Gordon et al. (2006) and Stead et al. (2007) found that for alcohol, tobacco,

illicit drugs and physical activity interventions, social marketing techniques were effective. Some interventions have also noted not just behaviour change, but also changes in knowledge, beliefs and attitudes towards the focal behaviour (Agha et al., 2007).

In the study of pro-environmental behaviour, from a social marketing perspective, few interventions have been formally evaluated in the academic literature, although case studies via national bodies such as the National Social Marketing Centre (http://www.nsmcentre.org.uk/) suggest that social marketing interventions can be effective in this area. In the majority of studies related to pro-environmental behaviour in the workplace, a cross sectional approach was taken with only a few including examination of an intervention or a time series analysis. The few studies that have included a study of an intervention include: an experimental intervention of recycling behaviour (Ludwig, Gray, & Rowell, 1998), a feedback intervention (Carrico & Riemer, 2011) and an experimental intervention with office paper recycling (Brothers, Krantz, & McClannahan, 1994). Ludwig, Gray and Rowell's (1998) intervention increased recycling from 35% to 71% during the intervention. However, this did return to 40% after the intervention. Carrico and Riemer's (2011) intervention resulted in a 4% reduction in energy use for a group exposed to peer education with buildings receiving feedback on their energy consumption of 7% less energy than those in the control group buildings. Brothers, Krantz and McClannahan's (1994) intervention increased recycling to 85% to 94% of all recyclable paper being recycled.

Moreover, in marketing, involvement (i.e. consumers' personal relevance with an issue, product or campaign) has also been found to impact consumers' knowledge, information processing and decision-making, as well as resulting behaviours (Greenwald & Leavitt, 1984; Kokkinaki & Lunt, 1997; Krugman, 1967; Laczniak & Muehling, 1993; Petty & Caccioppo, 1979; Zaichowsky, 1985, 1994). In relation to exposure to a message/campaign, Krugman (1965) and Ray (1973) proposed that decision-making can also take place under low

involvement conditions, as well as high involvement. Therefore, the involvement a consumer has with the social marketing campaign may impact behaviours.

Thus, it is hypothesised about the impact of the social marketing interventions on specific types of workplace behaviour that:

H6: The social marketing interventions will generate significant differences between the pre-intervention and post-intervention group in relation to employees' self-reported: a) heating/cooling switching behaviour; b) recycling behaviour; and c) overall behaviour, at the workplace.

In relation to the influence of the social marketing interventions on actual workplace behaviours, it hypothesised that:

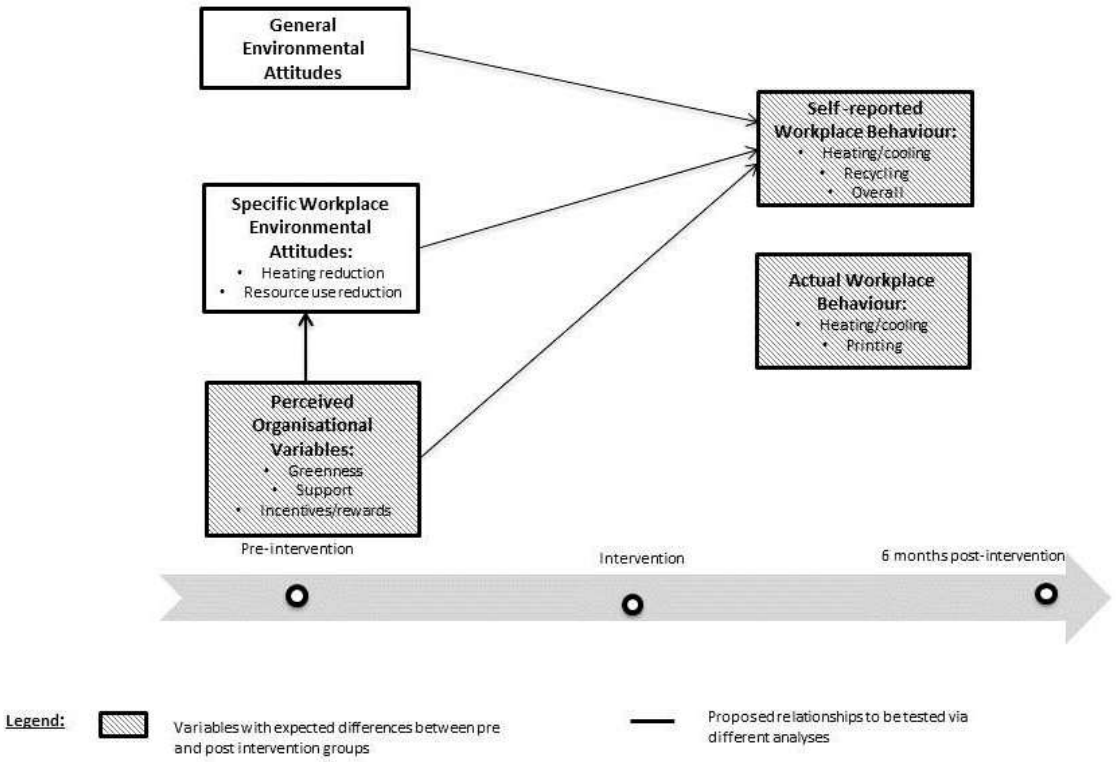
H7: The social marketing interventions will generate significant difference between the pre-intervention and post-intervention group in relation to employees' actual: a) heating/cooling switching behaviour; and b) printing behaviour, at the workplace.

Finally, regarding the impact of the social marketing interventions on specific organisational variables, it is hypothesised that:

H8: The social marketing interventions will generate significant difference between the pre-intervention and post-intervention group in relation to employees' perception of organisation's: a) level of greenness; b) level of support; and c) incentives or rewards.

In the light of the above hypotheses, this paper will contribute to the literature by exploring the effects of concurrent behavioural intervention campaigns on self-reported workplace behaviour, in addition to the impacts of both individual and organisational variables on self-reported workplace behaviour. Figure One below presents the variables that are included in the study and the proposed relationships to be tested via regressions and t-tests, along with the timeline of the interventions.

Figure One. Conceptual framework and proposed relationships to be tested



The effect of two simultaneous interventions has rarely been explored in prior literature, and the hypotheses proposed above aim to explore the effect of the two interventions on corresponding individual behaviours (i.e. heating/cooling and recycling), as well as on the employees' overall workplace behaviour. This is important to investigate as doing two interventions concurrently might save time and effort for the organisation, which if successful could make CSR initiatives and interventions much more cost effective. In line with the stated objectives, these hypotheses will allow the testing of the relationship between individual and organisational variables, and their effects on actual environmentally friendly behaviour, which has been under-researched in the past.

Methodology

The data used in this study were drawn from two quantitative surveys of a British City Council by Global Action Plan (GAP), a leading UK environmental behaviour change charity. The questionnaires were neither originally designed, nor data were collected, with these specific analyses in mind, which imposes some limitations on the dataset and the possible analyses. However, this paper uses real data which was collected in a non-laboratory/field environment and which generated interesting and rich findings as detailed later. More importantly, the data used here includes measurements of actual behaviour in addition to self-reported behaviour. This is expected to offer a more accurate reflection of the effects of two concomitant interventions (heating/cooling and printing) because it allows overcoming issues such as the attitude-behaviour gap (see detailed discussion in the *Measures and reliability* section).

The data collected during the first survey, which was carried out before the interventions, requested information about employees' general environmentally friendly attitude, satisfaction with level of impact on the environment, attitudes toward environmentally friendly behaviour at the workplace, perceptions of employer's behaviour, and various types of self-reported environmentally friendly behaviour at the workplace (see also Table One). During this survey, the employees were also asked to comment on current environmental issues with the Council's offices and ways to lower the environmental impact at the workplace (see details about these comments and verbatim extracts in the section Results and Discussion). Consequently, the choice of interventions was made based on the Council's objectives as well as the qualitative feedback received from its staff.

Table One: Measures and Reliability

Variables	Items reverse coded	Cronbach's Alpha	Group for measured items	Type of variable	Type of scale used
General environmentally friendly attitudes		0.774	***Pre-intervention***	Individual	
The effects of climate change are too far in the future to really worry me	reverse coded				
I don't pay much attention to the amount of water I use at home	reverse coded				
It's not worth me doing things to help the environment if others don't do	reverse coded				
If things continue on their current course, we will soon experience a major environmental disaster					
It's only worth doing environmentally-friendly things if they save you money	reverse coded				
People who fly should bear the cost of the environmental damage that air travel causes					5-point Likert where 1=strongly disagree; 5= strongly agree
It's not worth Britain trying to combat climate change because other countries will just cancel out what we do	reverse coded				
I don't really give much thought to saving energy in my home	reverse coded				
For the sake of the environment, car users should pay higher taxes					
The environment is a low priority for me compared with a lot of other things in my life	reverse coded				
It takes too much effort to do things that are environmentally friendly	reverse coded				
We are close to the limit of the number of people the earth can support					
I would be prepared to pay more for environmentally-friendly products					
Satisfaction with level of impact on the environment		–	***Pre-intervention***	Individual	5-point Likert where 1=I'd like to do a lot more to help the environment; 5= I am very happy with what I do at the moment
Are you happy about your current lifestyle and actions impacting on the environment?					
Attitudes toward environmentally friendly behaviour at the workplace		–	***Both***	Individual	
Doing things like turning off office equipment when not in use is important in reducing our workplace's emissions.					5-point Likert where 1=strongly disagree; 5= strongly agree
Reducing heating in the office has no effect in tackling climate change	reverse coded				
It is every employee's responsibility to reduce the resources (e.g. paper, water, energy) they use					
Perceptions of employer's behaviour		–	***Both***	Organisational	5-point Likert where
Please indicate how 'green' (environmentally friendly) the Council is, compared to what it could be: The Council...					1= will never care about being green; 5= is really green
					1= not at all; 5= really important
How much support do employees receive					1 =it offers not support at all; 5=it

from the Council to work in an environmentally friendly way?					strongly supports us
Does the Council incentivise/reward environmentally friendly behaviour?					
Overall environmentally friendly behaviour at the workplace		0.738	***Both***	Individual	5-point Likert where 1= never; 5= always
Heating/cooling switching at the workplace (see details below)					
Recycling behaviour at the workplace (see details below)					
I turn off office equipment when not in use, especially overnight (e.g. photocopiers, printers etc)					
I leave the computer on even when not in use for over 30 minutes	reverse coded				
I tend to print emails for ease of reference	reverse coded				
I print using one side of the paper only	reverse coded				
Heating/cooling switching at the workplace		0.706	***Both***	Individual	
I add or remove clothing rather than turning heating or air conditioning up when it's hot or cold.					5-point Likert where 1= never; 5= always
I open or close windows rather than turning heating or air conditioning up when it's hot or cold.					
I turn heating or air conditioning down if I can find other ways to remain comfortable.					
Recycling behaviour at the workplace		0.840	***Both***	Individual	
I put the following in separate recycling/compost bins: paper					5-point Likert where 1= never; 5= always
I put the following in separate recycling/compost bins: cardboard					
I put the following in separate recycling/compost bins: cans					
I put the following in separate recycling/compost bins: plastic cups/bottles					
I put the following in separate recycling/compost bins: glass					
I put the following in separate recycling/compost bins: toner					
I put the following in separate recycling/compost bins: compost					

Note: Items for which no values are provided in the table have been measured as one-item scales

Interventions: Two interventions/campaigns took place within the City Council and run simultaneously across all Council buildings and locations (a total of 2,129 employees): a heating/cooling campaign and a printing campaign, the latter aiming to reduce the amount of paper recycled. The campaign messages were 'Make individual, low energy, adjustments to

control your temperature' and 'Reduce the amount of paper you use by printing less or more efficiently'.

The heating/cooling campaign installed thermometers and posters through the Council buildings and the temperature was recorded three times a day as well as notes taken on whether fans where being used or windows were open. The campaign communications focussed on informing about the optimal temperature in an office, giving tips to the employees on how to manage their own personal temperature if they were feeling too hot or too cold (e.g. drinking a glass of cold water, putting on a jumper) as well as providing information about how to contact facilities management if temperature readings were outside the acceptable range. This information was communicated through posters, staff emails, and informally through word of mouth.

The SmartPrint campaign started with an audit of baseline paper usage with audit phases each week. Communications included simple tips on how to use less paper (e.g. set default double side printing, adjust your margins to get more on one page), as well as tangible and specific communications to visualise the impact of paper use in the Council (e.g. poster showing that if every Council's employee used one less sheet of paper per day the amount of paper used would be as high as Big Ben).

The data collected during the second survey, which was carried out after the interventions, requested information about employees' attitudes toward environmentally friendly behaviour at the workplace, perceptions of employer's behaviour, and various types of self-reported environmentally friendly behaviour at the workplace. Unlike in the pre-intervention survey, where the employees were given the chance to comment on what can be done to improve environmentally friendly behaviour at the workplace, this question was not included in the post-intervention survey. This represents a limitation of this campaign and future interventions must consider this as it will enable a clear comparison of perceived issues/barriers before and after the intervention.

Both surveys (pre-intervention and post-intervention) were administered electronically with emails being sent to all employees. Both surveys were run anonymously to encourage participation, reduce social desirability bias (Bradburn, Sudman, & Wansink, 2004; Richman, Kiesler, Weisband, & Drasgow, 1999) and comply with ethical research conduct. Ninety-two employees took part in the pre-intervention survey and eighty-one employees agreed to participate in the post-intervention survey, with data being collected from different employees. Thus, the intervention took the form of a situated experiment (Greenberg & Tomlinson, 2004) with the employees involved in the pre-intervention survey representing the control group and the employees taking part in the post-intervention group, representing the treatment group. A situated experiment is 'a laboratory-type experiment conducted in a natural setting, such as an organisation. Situated experiments result from transplanting the typical laboratory experiment into the field making adjustments that capitalize on the richness of the naturalistic environments in which they occur' (Greenberg & Tomlinson, 2004, p. 705). When compared to standard field experiments that also take place in a natural setting, situated experiments show several advantages. They are methodologically rigorous, can offer good opportunities for random assignment can ensure a high quality of manipulations and a high control over some variables (Greenberg & Tomlinson, 2004). Being set in an organisation, situated experiments can be a better alternative to regular laboratory experiments which have been criticised due to their lack of realism, artificiality and lack of generalisability (see Jiménez-Bued, & Miller, 2010; Levitt & List, 2007; Schram, 2005). The aim of the situated experiment was to compare the responses and behaviours of these two groups in order to assess the effectiveness of the environmental campaigns.

Measures and reliability: The research focused on both individual and organisational variables and collected information on both self-reported and actual behaviour. Details of the scales utilised are contained in Table One, which shows all scales used had a Cronbach's Alpha above .70, signifying good reliability (Fornell & Larcker, 1981). Table One also

highlights the items that were reverse coded. All the analyses presented in following sections have been carried out using the reversed coded items. It should be noted that, because of the research design employed by the charity, not all the variables measured in the pre-intervention questionnaire were also measured in the post-intervention questionnaire.

General environmental attitudes were measured using 13 items, which are based on a Defra segmentation (Defra, 2008). A number of measures of general environmental attitudes or concern have been used within the general pro-environmental and employee environmental literature, although there is little consensus over which is the most reliable and valid or best to employ. For example, the ecological worldview has been used in a number of studies (Dunlap, Van Liere, Mertig & Jones 2000), as well as the environmental worldview (Scherbaum, Popovich, & Finlinson, 2008), and one study used personal environmental attitudes to explore gender differences in attitudes (Wehrmeyer & McNeil, 2000). More specific attitudes were measured using the 'Attitudes toward environmentally friendly behaviour at the workplace' scale which contains three items. Items within this scale were similar to items used by Marans and Lee (1993) and Tudor, Barr, Stewart & Gilg (2008). Satisfaction with the level of impact on the environment was included as a single-item scale to assess employees' readiness for the interventions. Perceptions of the organisations were measured with three items: a) 'Please indicate how "green" (environmentally friendly) the Council is, compared to what it could be' to assess the perceived commitment of the organisation, b) 'How much support do employees receive from the Council to work in an environmentally friendly way?' to assess general support (including leadership) and c) 'Does the Council incentivise/reward environmentally friendly behaviour?' to assess more levels of more specific support (both financial and non-financial). The scale used similar items to Andersson, Shivarajan and Blau (2005) and built on conceptual and qualitative elements of Tudor, Barr, and Gilg, (2008) and Smith and O'Sullivan (2012). Self-reported behaviour was measured in three ways with three separate scales. The first two assessed specific behaviours

related to the interventions ‘heating/cooling at the workplace’ and ‘recycling’. The third scale, more broadly, assessed overall pro-environmental behaviour at the workplace and included measures of heating/cooling, recycling, office equipment energy use and printing. These scales are in a similar style to those used by Lee, De Young and Marans (1995) and Scherbaum, Popovich, and Finlinson (2008).

In addition to the measures presented in Table One and discussed above, the present research also included measurements of actual environmental workplace behaviour. As mentioned earlier in the literature review section, this measurement strengthens the reliability of the study and helps overcome many of the criticisms related to the ability of intentions to accurately predict behaviour, the artificiality of laboratory research, and the limitations of the attitude-behaviour gap. Additionally, this overcomes the issue of common method variance (CMV i.e. systematic method error due to use of a single rater or single source), which has been highlighted recently as an issue of cross-sectional survey research, along with causal inference (CI i.e. the ability to infer causation from observed empirical relationships) (Rindfleisch, Malter, Ganesan, & Moorman, 2008). Longitudinal data collection has been highlighted as a method of reducing CMV and increasing CI (Bagozzi, Yi & Phillips, 1991; Rindfleisch et al., 2008). Thus, the longitudinal nature of this study has enabled it to overcome some sources of common method biases, such as common rater effects (e.g. when the measure of the predictor and criterion variable is given by the same person) and measurement context effects (e.g. the predictor and criterion variable, which by being measured at the same point in time, could lead to artifactual covariance) (Podsakoff, MacKenzie, & Podsakoff, 2003).

As shown in Table One, some of the aspects were measured using single-items scales, due to the fact that the questionnaire was designed by the charity. While this might be seen as a limitation, there is increasing recent support in the field of psychology and marketing for the use of single-item measures (e.g. studies by Hoeppner, Urbanoski, & Slaymaker, 2011;

Mende, Bolton, & Bitner, 2013; Sauro, 2013). For example, a study by Bergkvist and Rossiter (2007), published in the Journal of Marketing Research, on the predictive validity of single-item and multiple-item measures of attitude toward the ad and attitude toward the brand, has shown that there was no difference in the validity of the two measures. In a paper dedicated to the assessment of single-item measurements in management research, Fuchs and Diamantopoulos's (2009, p. 206) analysis lead them to conclude that the 'application of single-item measures is appropriate under certain conditions and that their general banishment is not justified.'

Independent t-tests at 99% confidence level showed that there were no significant differences among the pre-intervention (n=92) and post-intervention groups (n=81) in terms of socio-demographic variables (Gender: $t(171)=1.48$, $p>.05$; Age: $t(171)=.24$, $p>.05$; Type of employment: $t(171)=.83$, $p>.05$; Ethnic background: $t(170)=-.39$, $p>.05$). These analyses were carried out to ensure that extraneous variables have the same effect on employees' attitudes and behaviour (e.g. see Vanhamme, Lindgreen, Reast, & van Popering, 2012; Kwok & Uncles, 2005) and ensured that the potential differences in attitudes, intentions and behaviours between the employees belonging to the pre- and post-intervention groups were not due to the influence of individual/demographic variables. It was important to demonstrate that the two groups are 'comparable in terms of these variables that are likely to be related to the dependent variable in the study' (Rubin & Babbie, 2011, p. 260). Additional descriptive analyses were carried out and these confirmed that the two groups were comparable and balanced in terms of gender, age, ethnic background and type of employment within the Council.

The next section will present the data analysis methods utilised and the results of the analyses undertaken to achieve the research objectives and test the hypotheses proposed earlier. It is useful to note that the type of the data analysis carried out has been limited by the sample size and the variables measured in the pre-intervention and post-intervention

group, so that more complex relations (e.g. mediation, moderation) and indirect effects could not be examined. However, the analyses conducted have revealed interesting and complex results about the variables of interest, as detailed below.

Results and discussion

This section presents the analysis of the aforementioned hypotheses, as well as some additional analyses (two factor analyses and content analyses of two set of qualitative data collected pre-intervention) done to further explore the pro-environmental behaviour within the workplace. More specifically, the first factor analysis about the dimensions of workplace behaviour was conducted to understand how the employees might categorise and group various workplace behaviours. This was important to check before any analysis including these behaviours as outcome variables. The second factor analysis was carried out to explore the potential dimensions of attitudes towards the environment, as this might be useful in developing future interventions, which could target specific dimensions of attitudes rather than general attitudes measured at an aggregated level. Additionally, the qualitative data analysis to be detailed in this section was conducted in order to: a) understand employees' feelings and attitudes towards pro-environmental behaviour, before the design of the interventions (and thus ensure focus and suitability of their design); and b) to explore employees' perceptions related to the support, commitment and incentives offered by the Council before the social marketing interventions were carried out.

The sections below mirror those of the literature review and research objectives, firstly discussing behaviour (objective 1), then attitudes (objective 2, H1-H3), organisational variables (objective 3, H4-H5) and, finally, the responses to the interventions themselves (objectives 4 & 5, H6-H8).

Behaviour: An exploratory factor analysis (principal component analysis) was used to examine the dimensions of workplace behaviour as seen by the employees. The aim of

this analysis was to understand if the employees see all behaviours as the same, and hence the same antecedents and concomitants of the behaviour may exist or whether employees categorise, and along what lines, certain aspects of environmental behaviour at the workplace. This analysis also included items which assessed energy saving behaviour through equipment usage and printing behaviour. This analysis was completed to explore behaviour across the whole sample (both pre-and post-intervention, n= 173). It was regarded acceptable to do the analysis across both groups as it was considered that the intervention would not have affected the way in which employees classify these types of behaviour but rather how much they engage in those behaviours.

As shown in Table Two, four factors were identified. These factors were labelled: recycling of common materials; heating/cooling switching behaviour; recycling of special materials; and workplace behaviour involving desktop equipment. Most of the variance is explained by Factor 1 (24.91) followed by Factor 2 (13.43%), 3 (11.30%) and 4 (9.53%). Altogether these factors explained 59.19% of the variation in the data before rotation. This shows that recycling is responsible for most of the variation in employee's overall behaviour (36.21%). In support of the prior literature, it appears that employees are grouping similar behaviours together (Reams et al., 1996), but in addition to this, they group recycling behaviours based on how common and routine these behaviours are.

Table Two: Factor analysis for environmentally friendly behaviour at the workplace (n=173)

	Factor loading				
Item	1	2	3	4	**Communality**
Factor 1: Recycling of common materials					
I put the following in separate recycling/compost bins: paper	.64				.48
I put the following in separate recycling/compost bins: cardboard	.75				.59
I put the following in separate recycling/compost bins: cans	.87				.78
I put the following in separate recycling/compost bins: plastic cups/bottles	.87				.78
I put the following in separate recycling/compost bins: glass	.79				.68

Factor 2: Heating/cooling switching behaviour					
I add or remove clothing rather than turning heating or air conditioning up when it's hot or cold.	.69				.56
I open or close windows rather than turning heating or air conditioning up when it's hot or cold.	.82				.70
I turn heating or air conditioning down if I can find other ways to remain comfortable.	.82				.71
Factor 3: Recycling of special materials					
I put the following in separate recycling/compost bins: toner			.71		.62
I put the following in separate recycling/compost bins: compost			.71		.62
Factor 4: Workplace behaviour involving desktop equipment					
I turn off office equipment when not in use, especially overnight (e.g. photocopiers, printers etc)				.58	.36
I leave the computer on even when not in use for over 30 minutes				.63	.44
I tend to print emails for ease of reference				.71	.53
I print using one side of the paper only				.53	.37
Eigenvalue	3.92	1.93	1.34	1.07	
Variance (%)	24.91	13.43	11.30	9.53	
Cumulative variance (%)	24.91	38.34	49.65	59.19	
Cronbach's alpha					
Number of items (total = 14)	5	3	2	4	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Note: Boldface indicates the higher factor loadings.

The two dimensions of recycling behaviour at the workplace, as identified in the factor analysis above, have been considered when testing for significant differences between the groups as a result of the interventions (see testing of H7 below).

Attitudes: The qualitative comments collected in the pre-intervention questionnaire were valuable in understanding the feelings and attitudes towards pro-environmental behaviour by the employees before the intervention. The comments have been coded (Auerbach & Silverstein, 2003) and these revealed a series of staff-related issues, such as the need to behave in an environmentally friendly manner at all times, to increase individual responsibility, to overcome scepticism, and the need for individuals to volunteer as 'green leaders'. Staff-related issues were also identified and will be mentioned later on in this section. For example, one of the employee states:

'People in this office are very unconcerned about recycling and often contaminate the recycle containers with organic waste. Also people very rarely turn off their computing equipment and this could make a big difference to the Council's energy savings...'

Highlighted within these comments are the importance of knowledge (not contaminating bins) and information, which were thus aimed to be provided through the campaign. The comments also highlight important barriers, which are shown in the literature as determining the salience of other motivations (see Steg & Vlek, 2009). Unfortunately, qualitative data was not collected in the post-intervention questionnaire so it is impossible to compare the qualitative attitudes with those after the interventions. However, the quantitative data discussed below does provide evidence of how the attitudes have changed.

Before the testing of hypotheses, some exploratory analyses were used to understand more about employees' attitudes prior to the intervention. Factor analysis has been used a number of times to explore potential dimensions of attitudes towards the environment (e.g. Kaiser, Wölfing & Fuhrer, 1999; Milfont & Duckitt, 2004; Oskamp et al., 1991) and can therefore be useful in developing future research and interventions targeted towards these segmentations. For the pre-intervention group, data was collected to assess employees' overall general environmentally friendly attitudes and satisfaction with their current behaviour, measured by level of impact on the environment[3]. This data gives some indication of employees' state of readiness and receptivity with regards to the environmental campaigns. A factor analysis with the pre-intervention group (principal component analysis using Varimax rotation) was carried out for general environmentally friendly attitudes and four factors have been identified (see Table Three). The aim of the analysis was to understand the key attitudes that the Council's employees demonstrate considering generic environmental issues and into which dimensions these fall. These have been labelled: (Lack of) concern

[3] NB. The second post-intervention survey did not collect this data so this analysis cannot be carried out on the entire sample.

about environmental disaster; Taxing and paying for environmental damage; Environmentally friendly behaviour at home; Pessimistic-passive view. Most of the variance is explained by Factor 1 (24.36%) followed by Factor 2 and 3 (14.73% and 13.95%). Altogether these factors explained 62.92% of the variation in the data and demonstrate the validity of the used scale.

Table Three: Factor analysis for general environmentally friendly attitudes (n=92)

	Factor loading				
Item	1	2	3	4	**Communality**
Factor 1: (Lack of) Concern about environmental disaster					
The effects of climate change are too far in the future to really worry me	.69				.61
It's not worth me doing things to help the environment if others don't do	.58				.66
It's only worth doing environmentally-friendly things if they save you money	.76				.69
The environment is a low priority for me compared with a lot of other things in my life	.77				.68
It takes too much effort to do things that are environmentally friendly	.65				.4
Factor 2: Taxing and paying for environmental damage					
People who fly should bear the cost of the environmental damage that air travel causes		.55			.47
For the sake of the environment, car users should pay higher taxes		.74			.74
We are close to the limit of the number of people the earth can support		.75			.58
I would be prepared to pay more for environmentally-friendly products		.46			.43
Factor 3: Environmentally friendly behaviour at home					
I don't really give much thought to saving energy in my home			.77		.65
I don’t pay much attention to the amount of water I use at home			.84		.77
Factor 4: Pessimistic-passive view					
If things continue on their current course, we will soon experience a major environmental disaster				.73	.61
It's not worth Britain trying to combat climate change because other countries will just cancel out what we do				.61	.75

Eigenvalue	4.02	1.73	1.33	1.09
Variance (%)	24.36	14.73	13.95	9.87
Cumulative variance (%)	24.36	39.10	53.05	62.92
Cronbach's alpha				
Number of items (total = 13)	5	4	2	2

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Note: Boldface indicates the higher factor loadings.

In addition, initial analyses on the pre-intervention group showed that the employees reported above average (i.e. on a 1-5 Likert scale) environmentally friendly attitudes toward activities that would protect the environment (M=3.82, SD=.50, Min-Max=2.62-5.00; n=89) and satisfaction with the level of impact on the environment (M= 2.39, SD=1.08, Min-Max=1-54; n=92). A correlation test between these variables has shown that employees' general environmentally friendly attitudes are negatively correlated with their satisfaction with the level of impact on the environment ($r= -.334$, $p<.01$). Those who have stronger environmental attitudes, consider that they have a stronger negative impact on the environment and thus, are less happy/satisfied with their level of impact on the environment. Hence, these findings are encouraging since they indicate the employees would potentially respond to the campaigns given their declared desire to do more for the environment.

Moving forward with the hypotheses testing related to environmentally friendly attitudes (general and specific) and self-reported behaviours (H1-H3), a series of regressions were used. When testing the hypotheses regarding the influence of general environmental attitudes on different types of workplace behaviour (H1a, H1b, H1c), the results indicated that general environmental attitudes significantly predict recycling behaviour ($F (1,87)= 16.42$; $p=.00$) and overall workplace behaviour ($F(1,85)= 21.25$; $p=.00$), but not heating/cooling behaviour ($F(1,87)=1.68$; $p=.19$) (see Table Four). Thus, hypothesis H1b and H1c were accepted, but H1a was rejected. An explanation for this is that during the pre-intervention, the staff reported little control over the heating/cooling system, which was

centralised (see noted in the section '*Organisational variables'*). These regression analyses could not be repeated with the post-intervention since general environmental attitudes were not measured in the second questionnaire.

Table Four: Regression analysis summary for general environmental attitudes and employees' self-reported behaviours

	B	**SE B**	**Beta**	**t**	**P**
Heating/cooling workplace behaviour					
General environmental attitudes	.32	.24	.13	2.48	.198
Constant	2.37	.95		1.29	.015
R^2= .019					
Recycling workplace behaviour					
General environmental attitudes	.77	.19	.39	4.05	.000
Constant	.80	.73		1.08	.281
R^2=.159					
Overall workplace behaviour					
General environmental attitudes	.61	.13	.44	4.61	.000
Constant	1.28	.51		2.51	.014
R^2=.200					

Regression analyses (see Table Five – upper part) indicated that specific workplace attitudes significantly predicted workplace behaviour, such as heating F(1, 170) = 8.600, p= .004; and recycling F(1, 170) = 13.364, p= .000. Thus, both hypothesis H2a (*Attitudes toward reducing heating at the workplace will have a significant positive influence on employees' self-reported heating/cooling switching behaviour at the workplace*) and H2b (*Attitudes toward reducing resources use at the workplace will have a significant positive influence on employees' self-reported recycling at the workplace*) were accepted.

Similarly, regression analyses in the pre-intervention group (see Table Five – lower part) have found that *general environmental attitudes have a significant positive influence on employees' attitudes toward reducing heating at the workplace* (H3a) and on *employees' attitudes toward reducing resources use* (H3b). These general attitudes explained between 13%-14% of the variation in specific workplace attitudes for reducing heating and resources use. This indicates that employees who are more generally concerned about the environment are also more likely to have stronger environmentally friendly attitudes at the workplace. This

confirms some of the past literature that if individuals recycle at home (for example) they are much more likely to recycle at the workplace (Lee, De Young, & Marans 1995; McDonald, 2011; Tudor et al., 2008) even if at a lower level. However, these findings extend past knowledge as they show this relationship to exist in the case of other workplace attitudes.

Table Five: Regression analyses summary for generic environmental attitudes, specific environmental workplace attitudes and specific self-reported environmental workplace behaviour

	B	**SE B**	**Beta**	**t**	**P**
Heating/cooling workplace behaviour					
Reducing heating attitudes	.26	.09	**.21**	2.93	.004
Constant	2.32	.37		6.18	.000
R^2= .048					
Recycling workplace behaviour					
Reduction in resource use attitudes	.38	.10	**.27**	3.65	.000
Constant	1.99	.47		4.15	.000
R^2=.073					
Attitudes toward reducing heating					
General environmentally friendly attitudes	.54	.14	.36	3.66	.000
Constant	2.1	.57		3.88	.000
R^2= .133					
Attitudes toward reducing resources use					
General environmentally friendly attitudes	2.26	.54		4.14	.000
Constant	2.26	.14	.38	3.88	.000
R^2= .138					

Organisational variables: As noted previously, the qualitative data in the pre-intervention questionnaires revealed a number of Council-related comments. The employees highlighted the need to improve recycling facilities, to provide printers with double-sided printing options, to provide incentives for being green, to increase information about how to become green/greener and to offer better management of the heating/cooling system which they have felt they had limited control over. For example, one employee stated:

'It would be helpful if we could open windows instead of relying upon mechanical air conditioning. Similarly, we have no direct control lighting/heating - it is a centralised system.

Finally, there would be considerable savings if we had a stair case and did not have to use the lift on all occasions'.

Overall, this data confirmed an initial lack of organisational commitment, support and facilitation of the environmental behaviour which is consistent with findings of previous studies across a range of organisations (e.g. Lee, De Young, & Marans, 1995; Tudor et al., 2008).

In testing for the influence of the *organisational variables on employees' attitudes toward reducing heating at the workplace* (H4a) and *on employees' attitudes toward reducing heating at the workplace* (H4b), a complex set of results emerged (see Table Six). Attitudes toward reducing the use of heating in the workplace was significantly predicted only by perceptions of organisation's level of support ($p<.05$), while attitudes towards reduction in use of resources was not significantly predicted by any of the organisational variables. For attitudes about reducing the use of heating, the model was statistically significant, $F(3,168) = 2.783$, $p= .043 < .05$, and accounted just under 5% of the variance of the heating/cooling attitudes among employees. For attitudes about reduction in use of resources, the model was not statistically significant, $F(3,169) = .275$, $p= .843$.

Table Six: Regression analysis summary for employees' attitudes about reducing heating and use of resources and organisational variables

	B	**SE B**	**Beta**	**t**	**P**
Reducing heating attitudes					
Organisation's level of greenness	-.06	.14	-.04	-4.6	.640
Organisation's level of support	.25	.09	**.23**	2.53	.012
Organisation's incentives or rewards	-.00	.07	-.00	-.01	.983
Constant	3.43	.43		7.98	.000
R^2= .047					

	B	**SE B**	**Beta**	**t**	**P**
Reduction in resource use attitudes					
Organisation's level of greenness	.09	.11	.07	.85	.394
Organisation's level of support	-.02	.01	-.03	-.35	.721
Organisation's incentives or rewards	-.02	.05	-.02	-.35	.726
Constant	4.19	.32		12.76	.000
R^2=.005					

When testing for hypotheses H5a and H5b, it was found that none of the organisational variables significantly predicted neither heating behaviour ($F(3,169)=.700$; $p=.553$) nor recycling behaviour ($F(3,168)=.324$; $p=.808$) at the workplace. Thus H5a and H5b were rejected.

Social marketing campaigns: When testing for the *changes generated by the social marketing interventions in relation to employees' self-reported heating/cooling switching behaviour* (H6a), *recycling behaviour* (H6b) and *overall behaviour* (H6c) *at the workplace*, a series of independent t-tests were undertaken to compare the differences between the two groups (Table Seven). It was found that there were significant differences in terms of their overall environmentally friendly behaviour at the workplace ($M_{pre\text{-}intervention} = 3.63$ vs. $M_{post\text{-}intervention} = 3.42$; $p<.05$); as well as heating/cooling switching behaviour ($M_{pre\text{-}intervention} = 3.61$ vs. $M_{post\text{-}intervention} = 3.14$; $p<.05$). Thus, H6a and H6C were accepted, while H6b was rejected. Interestingly, for both behaviours the mean values in the post-intervention group were lower than those in the pre-intervention group. These are new and interesting findings, as to the authors' knowledge, the literature on employee environmental behaviour has not reported any similar analyses and results. A potential explanation for this might be the fact that, after the intervention, the employees became more critical of their behaviour. Indeed it is possible that, before the intervention, individuals may have over-rated their environmental behaviour, thus reporting higher green behaviour than was actually taking place. Alternatively, there is the possibility of employees thinking they have already been doing all they could do in relation to engaging in green behaviours, that might explain these results. An alternative explanation for the lower post intervention scores could also be related to perceived behavioural control (Fishbein & Ajzen, 1975). This means that the employees may have reported lower scores for their behaviour because of their lower level of perceived behavioural control as a result of the interventions. Several theories posit that 'greater perceived or actual control over behaviours should be associated with improved prediction of behaviour by intention (e.g., TPB, MIP,

SCT[4])' as well as 'greater actual control over behaviour is associated with more effective translation of intentions into action, (Webb & Sheeran, 2006, p. 252). Indeed, in research on smoking cessation using the TPB, perceived behavioural control is a significant predictor of behavioural intention (Norman, Connor, & Bell, 1999).

Table Seven: Differences between the groups' perceptions of employer's behaviour and individual behaviour at the workplace

	Pre-intervention group		Post-intervention group				
	M	SD	M	SD	df	t	p
Does the Council incentivise/reward environmentally friendly behaviour?	3.39	.98	3.69	.78	169.44	-2.23	**.027**
How much support do employees receive from the Council to work in an environmentally friendly way?	2.18	1.05	2.53	.98	171	-2.21	**.028**
Please indicate how 'green' (environmentally friendly) the Council is, compared to what it could be.	3.31	.59	3.45	.57	171	-1.59	.112
Overall environmentally friendly behaviour at the workplace	3.61	1.17	3.14	1.04	162	2.13	**.034**
Heating/cooling switching at the workplace	3.63	.67	3.42	.61	167	-2.03	**.044**
Recycling	3.77	.98	3.51	1.07	170	1.65	.100
Recycling of common materials	4.17	1.03	3.93	1.07	170	1.48	.138
Recycling of special materials	2.77	1.51	2.49	1.51	171	1.18	.236

There were no significant differences between the groups in terms of overall recycling or the two dimensions of recycling (as identified by the factor analysis i.e. recycling of common materials and recycling of special materials). This result may suggest that the recycling intervention did not work in terms of increasing self-reported recycling behaviour or that repetitive recycling interventions may not work (if employees have been encouraged through interventions to engage in recycling behaviours, many times previously) given that employees may feel that there is nothing else they could do to increase their recycling behaviour. This is also relevant to perceived behavioural control, as noted earlier, which might have a moderating effect between exposures to interventions and behaviours.

[4] TPB = theory of planned behaviour (Ajzen, 1985, 1991; Ajzen & Madden, 1986); MIP = The model of interpersonal behaviour (Triandis, 1980); SCT= social– cognitive theory (Bandura, 1977, 1998)

Next, changes in actual behaviour due to the intervention were assessed. Hypothesis H7b posited that *the social marketing interventions will generate significant difference between the pre-intervention and post-intervention group in relation to employees' actual heating/cooling switching behaviour at the workplace.* Measurements for the SmartPrint Campaign were collected throughout the campaign across the participating sites. Four office areas reported saving a total of 6 reams of paper in one week which equals 13.28 kg CO2 saved per week and £15.30 saved per week. If this behaviour was maintained over a period of a year the 690.69 kg CO2 (equivalent emissions to driving 3289 km in a medium sized car) and £795.60 would be saved. Hypothesis H7a posited that *the social marketing interventions will generate significant difference between the pre-intervention and post-intervention group in relation to employees' actual printing behaviour at the workplace.* A measurement of actual behaviour for the heating/cooling campaign and environmental savings could not be completed because of issues in measuring saving in terms of heating/cooling and because of the very wide scope of the activity which took place across multiple Council sites. Given that the measures of actual behaviour have not been taken at an individual level, caution should be exercised when interpreting or generalising these findings, as they are subjective in nature and other causes or circumstances might have influenced these results.

Finally, a series of t-tests were undertaken to compare the differences between the two groups across all the organisational variables, due to the social marketing interventions. Independent t-tests (Table Seven) showed that *the interventions generated a significant difference between the pre-intervention and post-intervention group in relation to employees' perception of organisation's level of support received from the Council* (H8b) and *in relation to employees' perception of organisation's level of support* (H8c). More support and incentives were perceived after the intervention. However, no significant changes were found *in relation to the organisation's perceived greenness* (H8a). An explanation for this could be

the fact that in order to change employees' perception the Council needs to do much more i.e. conduct other types of interventions and engage in more green behaviour across their range of operations rather than increase green behaviour only via employees' conduct at the workplace. Thus H8a was rejected but H8b and H8c were accepted.

In summary, the interventions resulted in positive changes in perceptions of incentives and rewards, support to work in an environmental friendly manner and perceived greenness of the organisation. While there was a negative change in self-reported behaviour, actual behaviour does appear to have been affected by the interventions. A summary of the hypotheses testing results can be seen in Table Eight.

Table Eight: Summary of the tested hypotheses

Hypothesis	Status
General environmental attitudes→ self-reported workplace behaviours	
H1a	Rejected
H1b	Accepted
H1c	Accepted
Attitudes toward workplace behaviour → self-reported workplace behaviour	
H2a	Accepted
H2b	Accepted
General environmental attitudes → attitudes toward workplace behaviours	
H3a	Accepted
H3b	Accepted
Organisational variables → attitudes toward workplace behaviours	
H4a	Partially accepted
H4b	Rejected
Organisational variables →self-reported workplace behaviours	
H5a	Rejected
H5b	Rejected
Differences in self-reported workplace behaviours due to the interventions	
H6a	Accepted
H6b	Rejected
H6c	Accepted
Differences in actual workplace behaviours due to the interventions	
H7a	Accepted
H7b	Accepted
Differences in perceptions of organisational variables due to the interventions	
H8a	Rejected
H8b	Accepted
H8c	Accepted

Conclusion

The present paper has examined the impact of two real interventions (related to printing and heating/cooling) among the employees of a British City Council in connection to different types of environmental behaviours that the staff engaged in concurrently. Additionally, both individual and organisation variables were investigated (both before and after the interventions) in order to understand the effects of these campaigns and suggest changes for the design of effective interventions aimed at a various types of environmental behaviour at the workplace. In addition, unlike past intervention-based research, which focused mainly on one type of intervention (i.e. Brothers, Krantz, & McClannahan, 1994; Carrico & Riemer, 2011; Ludwig, Gray, & Rowell, 1998), the present study examined two environmental campaigns and their effects on a range of specific green behaviours at the workplace (i.e. heating/cooling, printing, recycling and overall green behaviour).

The paper had five research objectives. The first of these relates to how the employees view workplace pro-environmental behaviour. The results highlighted that employees did not see all behaviours in the same way and grouped them into four distinct behaviour groups: recycling of common materials; recycling of special materials; heating/cooling switching behaviour; and workplace behaviour involving desktop equipment. The second objective of the paper relates to the environmental attitudes held by employees (both general and specific) and how they affect workplace environmental behaviours. Employees' general environmental attitudes, before exposure to the intervention, could be grouped into four categories: (lack of) concern about environmental disaster; taxing and paying for environmental damage; environmentally friendly behaviour at home; pessimistic-passive view of the world. General environmental behaviours predicted self-reported recycling and overall workplace behaviour, while specific workplace attitudes predicted both

heating and recycling behaviours. In addition, general workplace attitudes were found to have a positive impact on specific workplace attitudes.

The third objective sought to examine the relationships between organisational and individual variables and their effect on environmental attitudes and behaviours. The results showed a complex and multifaceted relationship between organisational and individual variables, with some organisational variables having an effect on employees' attitudes and no organisational variables significantly predicting self-reported behaviour.

The fourth and final objectives sought to assess changes in the employees' environmental attitudes and behaviour due to the social marketing interventions. The two interventions included in the present study were successful in terms of changing employees' environmental behaviour (i.e. paper was saved and a significant number of employees stated that they took part in the heating/cooling campaign), but as discussed above it must be noted that self-reported behaviour was rated lower than in the pre-intervention. It is also important to acknowledge that the employees acted in line with existing environmental work facilities (i.e. provided bins, heaters etc.) allowing specific types of environmental behaviours to be carried out (i.e. recycling, monitor switching, heating/cooling use etc.) and this is an important aspect to be considered by organisations that want to implement similar interventions. Certainly, as a number of the qualitative comments were related to barriers to behaviour change and as Steg and Vlek (2009) note, it is important to remove barriers to ensure successful environmental behaviour change. This is something which any organisation should consider prior to implementing a social marketing intervention.

The final objective sought to assess the strengths and weakness of the social marketing campaigns, the research instruments and the measurements employed, and to make recommendations for future interventions that will improve organisations' environmental performance and drive enduring behavioural change. These objectives were met through the managerial implications and future research sections detailed below.

*Managerial implications***:** While the literature does not generally explore more than one environmental behaviour at once in an organisational context (Grensing-Pophal, 1993; Lo et al., 2012a; Smith & O'Sullivan, 2012) and a comparison of different types of behaviours within the workplace has not taken place, the present study has examined the success of concomitant interventions (related to printing and heating/cooling) and different types of variables (both individual and organisational). For cost and time saving reasons it is likely that organisations will choose to work concurrently with behaviours and hence this study is highly relevant to the potential future use of organisational social marketing interventions. In the light of the overall findings, the general implication becomes clear – such a multifaceted approach should not only be adopted by organisations but also extended in their interventions since changes in employees' perceptions and behaviour were found. Additionally, organisations implementing environmental interventions, should not only address the importance of increasing awareness about and motivating different types of green behaviour at the workplace, but also increasing perceived behavioural control (Ajzen, 2002; Terry & O'Leary, 1995) by ensuring that these environmental actions recommended through the interventions are feasible (potentially by reducing any perceived or actual barriers and changing relevant infrastructure) and by ensuring that the employees are aware of their feasibility. This is linked strongly to the fact that in both the pre- and post- intervention groups, no organisational variable other than the level of perceived support was associated with the individual variables. This highlights that in order to motivate employees to engage in recommended green behaviours, organisations could use additional, more suitably tailored support and incentives for their target audience to potentially improve behaviour. This could in turn lead to campaigns and interventions targeting specific groups of behaviours that are more relevant to individual employees and may therefore add clarity to intervention messages. In addition, companies should consider the use of new technologies to ensure that individuals receive feedback on their own specific use of resources. One such product,

PaperCutMF™ (http://www.papercut-mf.com) allows managers to see, compare and communicate paper usage for each printer user. Carrico and Riemer (2011) highlight that feedback can be an especially effective method for energy conservation and in their study feedback resulted in a 7% drop in energy usage compared to buildings in a control group.

It is also of vital importance that organisations understand how the individuals view and group behaviours and explore whether the typology of behaviours uncovered here is relevant more widely. This may well have an influence on and help explain the variance in individual attitudinal (and organisational) effects observed here but also within previous studies (Lo et al., 2012a; 2012b; Marans & Lee 1993; Siero et al., 1996; Tudor et al., 2007; et al., 2008). It seems, therefore, that it is wise for organisations to consider different solutions and interventions, to understand the different barriers and motivators and to consider different infrastructure and support elements for specific groups of behaviours. For example, it might be cheaper for the organisation to replace some printers or set them to double-sided, but it would be more costly and/or difficult to replace heating/cooling system in all building, and hence behavioural change would rely more on the individual. All the above aspects should be considered carefully in the design and implementation of the campaign.

Given that the factor analysis identified two dimensions of recycling, as perceived by the employees and based on the prevalence and commonality i.e. recycling of common materials (paper, cardboard, plastic, glass) and recycling of special materials (toner and compost), it can be recommended that future interventions among employees should assess these two dimensions and tailor the interventions accordingly, in addition to the two other identified dimensions of employee behaviour i.e. heating/cooling behaviour and desktop behaviour. For example, if the employees already recycle a lot of the common materials due to habits outside the workplace (Marans & Lee, 1993; McDonald, 2011) and due to the existence of such bins/facilities in the workplace, then the intervention could focus more on

the recycling of special materials, for which there might be limited facilities and knowledge among the employees.

Given the limitations of relying on self-reported behaviour, (Barker et al., 1994), it can be concluded that a measurement of actual behaviour or validation of the self-report measure against actual behaviour is critical when assessing the success of such interventions at the workplace. In the case of the interventions described here, the environmental outcomes have been presented to the employees both in terms of quantity (i.e. 6 reams of paper) but also financial savings (£15.30 saved per week and £795.60 in a year) which could be considered an effective strategy since it is likely to engage employees who might have different types of motivations and respond to different motivational techniques. Other organisations could make use of this approach to savings reporting since the extant literature suggests the employees do not usually have a financial interest at the workplace (e.g. Carrico & Riemer, 2011) but might respond to a visual representation of the resources/tree that were saved by engaging in such an environmental behaviour.

Limitations and future research: While the present study contributes to the literature in several ways and has multiple managerial implications, some limitations must be discussed which lead to important future research directions.

Given that very little research has effectively evaluated interventions in pro-environmental behaviour and each format (sequentially, concurrently), future studies should aim to examine this, as well as to further explore the dimensions of behaviour and also with different samples. In support Andreasen (2003) highlights that for the future development of social marketing social marketers must ‘double their efforts to build and test models to understand and guide what we do’ (p. 300). This research has taken a step in doing this but future research needs to go further. Hence there is also a need for the validation and

replication of the current findings within both public and private organisations, to ensure that any potential factors that might generate differences in behaviour are identified. Replication is important for refinement in theory development and the literature stresses replication as a necessary step for knowledge advancement by both extending rather than just duplicating prior work (Easly, Madden, & Dunn, 2000; Evanschitzky, Baumgarth, Hubbard, & Armstrong, 1994; Wilk, 2001; Easley & Madden, 2013).

In addition to the variables we included in this study (as shown in Figure One and Figure One) and the corresponding relationships tested here, a series of other variables should be included in future research using primary data, in order to obtain a more comprehensive picture of the drivers of behavioural change among employees. For example, some key predictors/factors that future research could include, among others, are: perceived behavioural control, values, subjective norms, behavioural intentions (Ajzen, 2002), organisational culture (Deshpande, Farley and Webster, 1993) and perceived response-efficacy in relation to environmentally friendly behaviours. Increasing perceived environmental response-efficacy (response efficacy is the perceived ability of the recommended action to result in the outcome specified – Witte, 1992) could also increase the positive effects of an intervention (Witte, 1992). This can be easily achieved by including in the intervention messages the expected outcomes of the recommended actions. The relationships with these additional variables were not represented in the figure for simplicity purposes and in order to maintain the focus on this research.

Further research suggestions can also be made by comparison between attitudinal and behavioural variables in the workplace and non-workplace contexts. While the present study has shown that general environmental attitudes (i.e. non-workplace variables) have a significant impact on attitudes toward workplace behaviour and self-reported workplace behaviour (i.e. workplace variables), future research should examine the impact of the change

in the workplace variables (due to the social marketing interventions carried out at the workplace) on non-workplace variables such as: general environmental attitudes, and attitudes and behaviour related to heating/cooling, recycling and printing at home. Prior research suggests that behaviour in the home can spill over into the workplace. For example Marans and Lee (1993), Tudor, Barr and Gilg (2008) and the review by Lo, Peters and Kok (2012b) found that environmental management practices practised in the home strongly correlated with sustainable waste management behaviour at work. Future research should also explore whether this relationship works in reverse and whether behaviours in the workplace can generalise to the home after social marketing interventions.

The analyses indicated that employees' general environmental attitudes, before exposure to the intervention, can be grouped into four categories. Unfortunately, given the charity's research design, these attitudes were not measured in the post-intervention group so the two groups could not be compared on these categories. Future research should aim to confirm and validate the existence of these categories identified in this study, as they can be used as a target segmentation tool.

A carefully designed intervention, that takes into consideration the attitudes of its target audience, could have a greater success in motivating the target audience to first process the message, and secondly change attitudes to a more environmentally friendly outcome. In addition, the typology of employees' workplace behaviours (as per second factor analysis) also provides a possible segmentation that requires further work. Exploration and comparisons of pre- and post-intervention groups in terms of behaviour typologies is already underway. Future research should also attempt to expand this analysis to a wider range of organisations, and potentially behaviours, to understand if there is a stable typology which could be used across all companies/sectors and interventions or whether each companies/sectors typology is individual. For simplification purposes, the dimensions of

‘general environmental attitudes’ and ‘self-reported workplace behaviour’ are not included in the proposed framework, but future research should explore these dimensions in more detail across various contexts.

Another recommendation can be made in relation to the timeline for the social marketing interventions among employees. While the current study measured the variables of interest only after six months, future interventions should look to repeat these measurements at 12 and 18 months. While a number of studies have followed up at approximately 6 months (for example Brothers et al, 1994) none to our knowledge have returned at a later date. This would allow to examine if and how the influence of the interventions changes in time, as well as to test for a time effect on medium to long term behavioural change.

Because the variable ‘general environmental attitudes’ has not been measured in the post-intervention group, several relationships could not be tested in this paper. Additionally, actual workplace behaviour has only been accurately measured for printing, and this was at an aggregate rather than individual level, which would have shed additional light and allowed further analyses. Thus, future research and data collection should focus on prioritising these aspects.

Given that, when testing difference between the groups as a result of the intervention, the mean values for the overall environmentally friendly behaviour and the heating/cooling usage behaviour were lower in the post-intervention group than those in the pre-intervention group, it may also be the case for general environmental attitudes, which has not been measured post-intervention. In the light of the explanations provided in previous sections regarding the differences in behaviour, future interventions need to ensure that they are recommending green behaviours or an amount of green behaviours higher than the ones already being carried out by employees.

Finally, as noted above this data was not collected with these analyses in mind and hence the scales were not developed in as academically rigorous way as they could have been. Future research should also develop more robust and tailored measures of organisational variables. Future studies could also explore the possible contribution of age and length of service, as well as making comparisons between organisations which would relate to the site/type of organisation, as discussed in the literature.

Final remarks: This is the first study in the area of employee environmental behaviour that has looked at the effect of two simultaneous interventions (i.e. heating/cooling and printing) and also examined their effects on both individual and organisational variables, as well as employees' workplace behaviour. The results of this study and its managerial implications (i.e. in terms of the design of multiple interventions; the need for drawing a typology of overall environmentally friendly behaviour at the workplace before designing an intervention; the recommendation of measurement and representation of actual behaviour in multiple ways; and the need to consider the use of suitable support, incentives and barrier reduction for the targeted employee audience) should not be neglected by organisations as they offer valuable practical advice. These are important for the design of interventions meant to increase their employees' favourable attitudes and green behaviours and to improve the negative effects of the organisation's activities to the environment. Future researchers should focus on extending the approach taken in this study, in order to address limitations and make additional fruitful suggestions for the future design of environmental interventions that motivate employees to engage in various types of environmental behaviour in the workplace.

References

Agha, S., van Rossem, R., Stallworthy, G. & Kusanthan, T. (2007). The impact of a hybrid social marketing intervention on inequities in aces, ownership and use of insecticide-treated nets. *Malaria Journal, 6*(13), 1-11. doi:10.1186/1475-2875-6-13

Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management*, *38*(4), 932-968. doi: 10.1177/0149206311436079

Andreasen, A.R. (2003). The life trajectory of social marketing some implications. *Marketing Theory*, *3*(3), 293-303. doi: 10.1177/147059310333004

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.doi:10.1016/0749-5978(91)90020-T

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, *32(4)*, 665–683. doi: 10.1111/j.1559-1816.2002.tb00236.x

Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm framework. *Journal off Business Ethics, 59*, 295-305. doi: 10.1007/s10551-005-3440-x

Arnett, D.B., Laverie, D.. & Mclane, C. (2002). Using Job Satisfaction and Pride as Internal-Marketing Tools. *Cornell Hotel and Restaurant Administration Quarterly, April*, 87-96. doi: 10.1016/S0010-8804(02)80035-0

Athey, V.L., Suckling, R.J., Tod, A.M., Walters, S.J. & Rogers, T.K. (2012). Early diagnosis of lung cancer: Evaluation of a community-based social marketing intervention. *Thorax, 67*, 412-417. doi: 10.1136/thoraxjnl-2011-200714

Auerbach, C. F., & Silverstein, L. B. (2003). *Qualitative data: An introduction to coding and analysis*. NYU press.

Bagozzi, R.P., Yi, Y. & Phillips, L.W. (1991) Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly, 36*(3), 421-458. http://www.jstor.org/stable/2393203

Barker, K., Fong, L., Grossman, S., Quin, C., & Reid, R. (1994). Comparison of self-reported recycling attitudes and behaviors with actual behavior. *Psychological Reports, 75(1),* 571-577. doi: 10.2466/pr0.1994.75.1.571

Berger, I. (1997). The demographics of recycling and the structure of environmental behavior. *Environment and Behavior, 29,* 515-531. doi: 10.1177/001391659702900404

Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research, 44* (2), 175-184. http://dx.doi.org/10.1509/jmkr.44.2.175

Boulstridge., E & Carrigan, M (2000). Do consumers really care about corporate responsibility? Highlighting the attitude-behaviour gap. *Journal of Communication Management, 4*(4), 355–368. doi: 10.1108/eb023532

Bradburn, N.M., Sudman, S., & Wansink, B. (2004). *Asking questions: The definitive guide to questionnaire design - for market research, political polls, and social and health questionnaires*, Revised Edition. San Francisco: Jossey-Bass, A Wiley Imprint.

Brothers, K.J., Krantz, P.J., & McClannahan, L.E. (1994). Office paper recycling: A function of container proximity. *Journal of Applied Behavior Analysis, 27(1),* 153-160. doi: 10.1901/jaba.1994.27-153

Budd, R.J. (1987). Response bias and the theory of reasoned action. *Social Cognition, 5*, 95-107. doi: 10.1521/soco.1987.5.2.95

Carrico, A.R., & Riemer, M. (2011). Motivating energy conservation at the workplace: An evaluation of the use of group-level feedback and peer education. *Journal of Environmental* Psychology, *31(1),*1-13. http://dx.doi.org/10.1016/j.jenvp.2010.11.004

Caruana, A. & Calleya, P. (1998). The effect of internal marketing on organisational commitment among retail bank managers. *International Journal of Bank Marketing*, *16*(3), 108-116. doi: 10.1108/02652329810213510

Chandon, P., Morwitz, V.G. & Reinartz, W.J. (2005). Do intentions really predict behavior? Self-generated validity effects in survey research. *Journal of Marketing*, *69*, 1–14. http://dx.doi.org/10.1509/jmkg.69.2.1.60755

Chang, C.S. & Chang, H.C. (2009). Perceptions of internal marketing and organizational commitment by nurses. *Journal of Advanced Nursing*, *65(*1), 92-100. doi: 10.1111/j.1365-2648.2008.04844.x

Chatzidakis, A., Hibbert, S., & Smith, A.P. (2007). Why people don't take their concerns about fair trade to the supermarket: The role of neutralization. *Journal of Business Ethics, 74*, 89–100. doi: 10.1007/s10551-006-9222-2

Chun, J. S., Shin, Y., Choi, J. N., & Kim, M. S. (2013). How does corporate ethics contribute to firm financial performance? The mediating role of Collective Organizational Commitment and Organizational Citizenship Behavior. *Journal of Management*, *39*(4), 853-877. doi: 10.1177/0149206311419662

Cohen, D.A., Farley, T.A., Bedimo-Etame, J.R., Scribner, R., Ward, W., Kendall, C. & Rice, J. (1999). Implementation of Condom Social Marketing in Louisiana, 1993 to 1996, *American Journal of Public Health, 89*(2), 204-208. doi: 10.2105/AJPH.89.2.204

Defra (2008). A framework for pro-environmental behaviours. Report. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf

Deshpande, R., Farley, J. U. & Webster, F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *Journal of Marketing, 57*, 23-27. http://www.jstor.org/stable/1252055

Dibb, S., & Carrigan, M. (2013). Social marketing transformed: Kotler, Polonsky and Hastings reflect on social marketing in a period of social change. *European Journal of Marketing, 47*(9), 1376-1398. http://dx.doi.org/10.1108/EJM-05-2013-0248

Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: measuring endorsement of the new ecological paradigm: a revised NEP scale. *Journal of Social Issues*, *56*(3), 425-442. doi: 10.1111/0022-4537.00176

Easley, R.W., Madden, C.S., & Dunn, M.G. (2000). Conducting marketing science: The role of replication in the research process. *Journal of Business Research, 48(1),* 83-92. http://dx.doi.org/10.1016/S0148-2963(98)00079-4

Easley, R.W. & Madden, C.S. (2013). Replication revisited: Introduction to the special section on replication in business research. *Journal of Business Research, 66(9),* 1375-1376. http://dx.doi.org/10.1016/j.jbusres.2012.05.001

Ebreo, A. & Vinning, J. (1994). Conservation-wise consumers: Recycling and household shopping as ecological behavior. *Journal of Environmental Systems, 23*, 109-131. doi: 10.2190/C7MF-45UG-EH8B-963E

Elving, W.J.L (2006). The role of communication in organisational change, *Corporate Communications: An international Journal, 10*(2), 129-138. doi: 10.1108/13563280510596943

Evanschitzky, H., Baumgarth, C., Hubbard, R., & Armstrong, J.S. (2007). Replication research's disturbing trend. *Journal of Business Research, 60(4),* 411-415. http://dx.doi.org/10.1016/j.jbusres.2006.12.003

Feldman, J.M. & Lynch, L.G. Jr. (1988). Self-generated validity and other effects of measurement on belief, attitude, intention, and behavior. *Journal of Applied Psychology, 73* (3), 421–35.

Fishbein, M. & Ajzen, A. (1975). *Beliefs, attitudes, intentions and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley

Fornell, C., & Larcker, F.D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18 (1),* 39-50.

Foster, G.D., Sherman, S., Borradaile, K.E., Grundy, K/M., Vander, S.S., Nachmani, J., Karpyn, A., Kumanyika, S & Shults, J. (2008). A policy-based school intervention to prevent overweight and obesity. *Pediatrics, 121(4),* 794-802. doi: 10.1542/peds.2007-1365

Fuchs, C., & Diamantopoulos, A. (2009). Using single-item measures for construct measurement in management research. *Die Betriebswirtschaft, 69*(2), 195-210.

Gordon, R., McDermott, L., Stead, M., & Angus, K. (2006). The effectiveness of social marketing interventions for health improvement: what's the evidence? *Public Health, 120*(12), 1133-1139. doi:10.1016/j.puhe.2006.10.008

Greenberg, J., & Tomlinson, E.C. (2004). Situated experiments in organizations: Transplanting the lab to the field. *Journal of Management, 30(5),* 703-724. doi: 10.1016/j.jm.2003.11.001

Greenwald, A. G., & Leavitt, C. (1984). Audience involvement in advertising: Four levels. *Journal of Consumer Research, 11,* 581-592.

Gregory-Smith, D., Smith, A. & Winklhofer, H. (2013). Emotions and dissonance in "ethical" consumption choices. *Journal of Marketing Management, 29(11-12),* 1201-1223. doi:10.1080/0267257X.2013.796320

Grensing-Pophal, L. (1993). Reduce, reuse and recycle: Office conservation programs. *Office Systems, 10(9),*56-59.

Gummesson, E. (1987). Using internal marketing to develop a new culture – the case of Ericsson quality. *The Journal of Business and Industrial Marketing, 2*(3), 23-28. doi: 10.1108/eb006032

Hansen, S. D., Dunford, B. B., Boss, A. D., Boss, R. W., & Angermeier, I. (2011). Corporate social responsibility and the benefits of employee trust: A cross-disciplinary perspective. *Journal of Business Ethics, 102*(1), 29-45. doi: 10.1007/s10551-011-0903-0

Hoeppner, B.B., Kelly, J. F., Urbanoski, K. A., & Slaymaker, V. (2011). Comparative utility of a single-item versus multiple-item measure of self-efficacy in predicting relapse among young adults. *Journal of Substance Abuse Treatment, 41*(3), 305-312. doi: 10.1016/j.jsat.2011.04.005.

Hogg, G., Carter, S. & Dunne, A. (1998). Investing in people: Internal Marketing and Corporate Culture. *Journal of Marketing Management, 14*, 879-895. doi:10.1362/026725798784867563

Humphrey, C.R., Bord, R.J., Hammond, M.M., & Mann, S.H. (1977). Attitudes and conditions for cooperation in a paper recycling program. *Environment and Behavior, 9(1),* 107-124.

Jimenez-Buedo, M., & Miller, L. M. (2010). Why a trade-off? The relationship between the external and internal validity of experiments. *Theoria. Revista de Teoría, Historia y Fundamentos de la Ciencia*, 25(3), 301-321. DOI: http://dx.doi.org/10.1387/theoria.779

Kaiser, F.G., Wölfing, S. & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology, 19(1),* 1–19. http://dx.doi.org/10.1006/jevp.1998.0107

Kegeles, S.M., Hays, R.B. & Coates, T.J. (1996). The Mpowerment project: A community-level HIV prevention intervention for Young Gay Men. *American Journal of Public Health, 86*(8), 1129-1136.

Kim, H-R., Lee, M., Lee, H-T. and Kim, N-M. (2010). Corporate social responsibility and employee-company identification. *Journal of Business Ethics*, *95*, 557-569. doi: 10.1007/s10551-010-0440-2

Kokkinaki, F. & Lunt, P. (1997). The relationship between involvement, attitude accessibility and attitude–behaviour consistency. *British Journal of Social Psychology, 36*, 497–509. doi: 10.1111/j.2044-8309.1997.tb01146.x

Kollmus, A. & Agyeman, A. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental Education Research, 8(3),* 239-260. doi: 10.1080/13504620220145401

Krugman, H.E. (1967). The measurement of advertising involvement. *Public Opinion Quarterly, 30,* 583-596. doi: 10.1086/267457

Kwok, S., & Uncles, M. (2005). Sales promotion effectiveness: the impact of consumer differences at an ethnic-group level. *Journal of Product & Brand Management, 14*(3), 170-186. doi: 10.1108/10610420510601049

Laczniak, R.N., & Muehling, D.D. (1993). The Relationship between Experimental Manipulations and Tests of Theory in an Advertising Message Involvement Context. *Journal of Advertising, 22*(3), 59-74. http://www.jstor.org/stable/4188890

Lee, Y.J., De Young, R., & Marans, R.W. (1995). Factors influencing individual recycling behavior in office settings: A study of office workers in Taiwan. *Environment and Behavior, 27(3),* 80-403. doi: 10.1177/0013916595273006

Levitt, S.D., & List, J.A. (2007). What do laboratory experiments measuring social preferences reveal about the real world? *The Journal of Economic Perspectives, 21(2),* 153-174. doi: 10.1257/jep.21.2.153

Lichtman, S. W., Pisarska, K., Berman, E. R., Pestone, M., Dowling, H., Offenbacher, E., & Heymsfield, S. B. (1992). Discrepancy between self-reported and actual caloric intake and exercise in obese subjects. *New England Journal of Medicine, 327*(27), 1893-1898.

Lindenberg, S. & Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behavior. *Journal of Social Issues, 63(1),* 117-137. DOI: 10.1111/j.1540-4560.2007.00499.x

Lings, I.N., & Brooks, R.F. (1998). Implementing and Measuring the Effectiveness of Internal Marketing. *Journal of Marketing Management, 14,* 325-351. doi:10.1362/026725798784959426

Linn, N., Vinning, J. & Feeley, P.A. (1994) Towards a sustainable society: Waste minimization through environmentally conscious consuming. *Journal of Applied Social Psychology, 26,* 1259-1285. doi: 10.1111/j.1559-1816.1994.tb01562.x

Lo, S.H., Peters, G.J.Y., & Kok, G. (2012a). Energy-related behaviors in office buildings: A qualitative study on individual and organisational determinants. *Applied Psychology: An International Review*, 62(2), 227-249. doi: 10.1111/j.1464-0597.2011.00464.x

Lo, S.H., Peters, G.J.Y., & Kok, G. (2012b). A review of determinants of and interventions for proenvironmental behaviors in organizations. *Journal of Applied Psychology, 42(12),* 2933- 2967. doi: 10.1111/j.1559-1816.2012.00969.x

Loe, T.W., Ferrell, L., & Mansfield, P. (2000) A review of empirical studies assessing ethical decision making in business. *Journal of Business Ethics, 25*, 185-204. http://www.jstor.org/stable/25074310

Lowry, R. (2013). *The significance of the difference between the two correlation coefficients*. Available at http://www.vassarstats.net/rdiff.html .

Ludwig, T.D., Gray, T.W., & Rowell, A. (1998). Increasing recycling in academic buildings: A systematic review. *Journal of Applied Behavior Analysis, 31*(4), 683-686. doi: 10.1901/jaba.1998.31-683

Marans, R.W. & Lee, Y.J. (1993). Linking recycling behaviour to waste management planning: A case study of office workers in Taiwan. *Landscape and Urban Planning, 26(1),* 203-214. doi: http://dx.doi.org/10.1016/0169-2046(93)90017-8

McDonald, S. (2011). Green behaviour: Differences in recycling behaviour between the home and workplace. In D. Bartlett, (Ed.), *Going Green: The psychology of sustainability at the workplace* (pp. 1-5). Leicester, UK: The British Psychological Society.

Mende, M., Bolton, R. N., & Bitner, M. J. (2013). Decoding Customer-Firm Relationships: How Attachment Styles Help Explain Customers' Preferences for Closeness, Repurchase Intentions, and Changes in Relationship Breadth. *Journal of Marketing Research, 50*(1), 125-142. http://dx.doi.org/10.1509/jmr.10.0072

Midanik, L. (1982). The validity of self-reported alcohol consumption and alcohol problems: a literature review. *British Journal of Addiction, 77*(4), 357-382. doi: 10.1111/j.1360-0443.1982.tb02469.x

Milfont, T.L., & Duckitt, J. (2004). The structure of environmental attitudes: A first- and second-order confirmatory factor analysis. *Journal of Environmental Psychology*, 24(3), 289–303. http://dx.doi.org/10.1016/j.jenvp.2004.09.001

Morwitz, V., & Fitzsimons, G.J. (2004). The mere measurement effect: Why does measuring intentions change actual behaviour? *Journal of Consumer Psychology, 14* (1–2), 64–74.

Norman, P., Connor, M., & Bell, R. (1999). The Theory of Planned Behavior and Smoking Cessation. *Health Psychology, 18*(1). 89-94. doi: 10.1037/0278-6133.18.1.89

Oskamp, S., Harrington, M. J., Edwards, T. C., Sherwood, D. L., Okuda, S. M., & Swanson, D. C. (1991). Factors influencing household recycling behavior. *Environment and behavior*, 23(4), 494-519. doi: 10.1177/0013916591234005

Padel, S., & Foster, C (2005). Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British Food Journal, 107*(8), 606-625. doi: 10.1108/00070700510611002

Pérez-Lombard, L., Ortiz, J., & Pout, C. (2008). A review on buildings energy consumption information. *Energy and Buildings, 40(3),* 394-398. http://dx.doi.org/10.1016/j.enbuild.2007.03.007

Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology, 37*, 1915-1926. doi: 10.1037/0022-3514.37.10.1915

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. doi: 10.1037/0021-9010.88.5.879

Polonsky, M.J., Vocine, A., Landreth, S., Garma, R., & Ferdous, A.S. (2012). The impact of general and carbon-related environmental knowledge on attitudes and behaviour of US consumers. *Journal of Marketing Management, 28*(3-4), 238-263. doi: http://dx.doi.org/10.1080/0267257X.2012.659279

Proctor, T., & Doukakis, I. (2003). Change management: The role of internal communication and employee development. *Corporate Communications, 8*(4), 268-277. doi: 10.1108/13563280310506430

Rafiq, M. & Ahmed, P.K. (2000). Advances in the internal marketing concept: definition, synthesis and extension. *Journal of Services Marketing, 14*(6), 449-462. doi: 10.1108/08876040010347589

Ray, M. L. (1973). Marketing communication and the hierarchy of effects. In: P. Clarke (Ed.), *New models for communication research* (pp. 147-176). Beverly Hills, CA: Sage Publishing.

Ramus, C. A. & Steger, U. (2000). The roles of supervisory support behaviors and environmental policy in employee "ecoinitiatives" at leading-edge European companies. *Academy of Management Journal, 43(4),* 605-626. http://www.jstor.org/stable/1556357

Reams, M.A, Geaghan, J.P., & Gendron, R.C. (1996). The link between recycling and litter: A field study. *Environment and Behavior, 28,* 92-110. doi: 10.1177/0013916596281005

Richman, W.L., Kiesler, S., Weisband, S. & Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology, 84(5),* 754-775.

Rindfleisch, A., Malter, A. J., Ganesan, S., & Moorman, C. (2008). Cross-sectional versus longitudinal survey research: concepts, findings, and guidelines. *Journal of Marketing Research, 45*(3), 261-279. http://dx.doi.org/10.1509/jmkr.45.3.261

Rubin, A., & Babbie, E.R. (2011). *Research Methods for Social Work,* Belmont, USA: Cengage Learning.

Rupp, D. E., Ganapathi, J., Aguilera, R. V., & Williams, C. A. (2006). Employee reactions to corporate social responsibility: an organizational justice framework. *Journal of Organizational Behavior, 27*(4), 537-543. doi: 10.1002/job.380

Sauro, J. (2013). A Single-item Measure of Website Usability: Comments on Christophersen and Konradt (2011). *Interacting with Computers, 25*(4), 325-326. doi: 10.1093/iwc/iwt018

Scherbaum, C., Popovich, P.M., & Finlinson, S. (2008). Exploring individual-level factors related to employee energy-conservation behaviors at work. *Journal of Applied Social Psychology, 36(3),* 818-835. doi: 10.1111/j.1559-1816.2007.00328.x

Schram, A. (2005). Artificiality: The tension between internal and external validity in economic experiments. *Journal of Economic Methodology, 12(2),* 225-237. doi:10.1080/13501780500086081

Schultz, P., Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factors. *Journal of environmental psychology*, *15*(2), 105-121. http://dx.doi.org/10.1016/0272-4944(95)90019-5

Shippee, G., & Gregory, W.L. (1982). Public commitment and energy conservation. *American Journal of Community Psychology, 10(1),* 81-93. doi: 10.1007/BF00903306

Siero, F.W, Bakker, A.B., Dekker, G.B, & van den Burg, M.T.C (1996). Changing organizational energy consumption behaviour through comparative feedback. *Journal of Environmental Psychology, 16(3),* 235-246. http://dx.doi.org/10.1006/jevp.1996.0019

Siero, S., Boon, M., Kok, G., & Siero, F. (1989). Modification of driving behavior in a large transport organization: A field experiment. *Journal of Applied Psychology, 74(3),* 417-423.

Smith, A.M, & O'Sullivan, T. (2012). Environmentally responsible behaviour at the workplace: An internal social marketing approach. *Journal of Marketing Management, 28 (3-4),* 469-493. http://dx.doi.org/10.1080/0267257X.2012.658837

Stead, M, Gordon, R; Angus, K & McDermott, L (2007). A systematic review of social marketing effectiveness. *Health Education, 107*(2), 126–191. doi: 10.1108/09654280710731548

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*(3), 309-317. http://dx.doi.org/10.1016/j.jenvp.2008.10.004

Stern, P. C. (1999). Information, incentives and proenvironmental consumer behavior. *Journal of Consumer Policy, 22*, 461-478. doi: 10.1023/A:1006211709570

Stern, P. C (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56(3),* 407-424.

Szmigin, I., Carrigan, M., & McEachern, M. G. (2009). The conscious consumer: taking a flexible approach to ethical behaviour. *International Journal of Consumer Studies, 33*(2), 224-231. doi: 10.1111/j.1470-6431.2009.00750.x

Terry, D.J., & O'Leary, J.E. (1995). The theory of planned behaviour: The effects of perceived behavioural control and self-efficacy. *British Journal of Social Psychology, 34(2),* 199–220.

Thorgersen, J. (1999). Spillover processes in the development of a sustainable consumption pattern. *Journal of Economic Psychology, 20*, 53-81 http://dx.doi.org/10.1016/S0167-4870(98)00043-9

Tracy, A.P & Oskamp, S (1983-1984) Relationships among ecologically responsible behaviors. *Journal of Environmental Systems, 13*, 115-126. doi: 10.2190/6TN8-48WT-63XT-CHEN

Tudor, T.L., Barr, S.W., & Gilg, A.W. (2007). Linking intended behaviour and actions: A case study of healthcare waste management in the Cornwall NHS. *Resources Conservation and Recycling, 51(1),* 1-23. http://dx.doi.org/10.1016/j.resconrec.2006.06.009

Tudor, T.L, Barr, S.W., & Gilg, A.W. (2008). A novel conceptual framework for examining environmental behaviour in large organisations: A case study of the Cornwall national health service (NHS) in the United Kingdom. *Environment and Behaviour, 40(3),* 426-450. doi: 10.1177/0013916507300664

Turker, D. (2009). How corporate social responsibility influences organizational commitment. *Journal of Business Ethics, 89,* 189-204. doi: 10.1007/s10551-008-9993-8

Vanhamme, J., Lindgreen, A., Reast, J., & van Popering, N. (2012). To do well by doing good: improving corporate image through cause-related marketing. *Journal of business ethics*, *109*(3), 259-274. doi: 10.1007/s10551-011-1134-0

Varey, R. J., & Lewis, B. R. (1999). A broadened conception of internal marketing. *European Journal of Marketing*, *33*(9/10), 926-944. doi: 10.1108/03090569910285869

Vining, J., & Ebreo, A. (2002). Emerging theoretical and methodological perspectives on conservation behaviour. *Urbana, 51,* 61801.

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological bulletin*, *132*(2), 249.

Wehrmeyer, W., & McNeil, M. (2000). Activists, pragmatists, technophiles and tree-huggers? Gender differences in employees' environmental attitudes. *Journal of Business Ethics, 28(3),* 211-222. doi: 10.1023/A:1006253212744

Wilk, R.R. (2001). The impossibility and necessity of re-inquiry: Finding middle ground in social science. *Journal of Consumer Research, 28(2),* 308-312. http://www.jstor.org/stable/10.1086/322905

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs, 59(4),* 329-349. doi:10.1080/03637759209376276

Zaichowsky, J.L (1985). Measuring the involvement construct. *Journal of Consumer Research, 12*, 341-352. http://EconPapers.repec.org/RePEc:ucp:jconrs:v:12:y:1985:i:3:p:341-52

Zaichowsky, J.L. (1994). The personal involvement inventory: Reduction, revision and application to advertising. *Journal of Advertising*, *13*(4), 59-70. doi: 10.1080/00913367.1943.10673459